STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION
DIVISION OF FORESTRY

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The State Forester's Report

1971

State of California
Ronald Reagan, *Governor*

Resources Agency of California
Norman B. Livermore, Jr., *Secretary*

Department of Conservation
James G. Stearns, *Director*

The State Forester's 1971 Report

L. A. MORAN, State Forester

Board of Forestry

Whitford B. Carter, *Chairman*
Howard K. Nakae, *Vice Chairman*

Franklin L. Barnes, Jr.
C. Robert Barnum
Ray Crane

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Markham E. Salsbury

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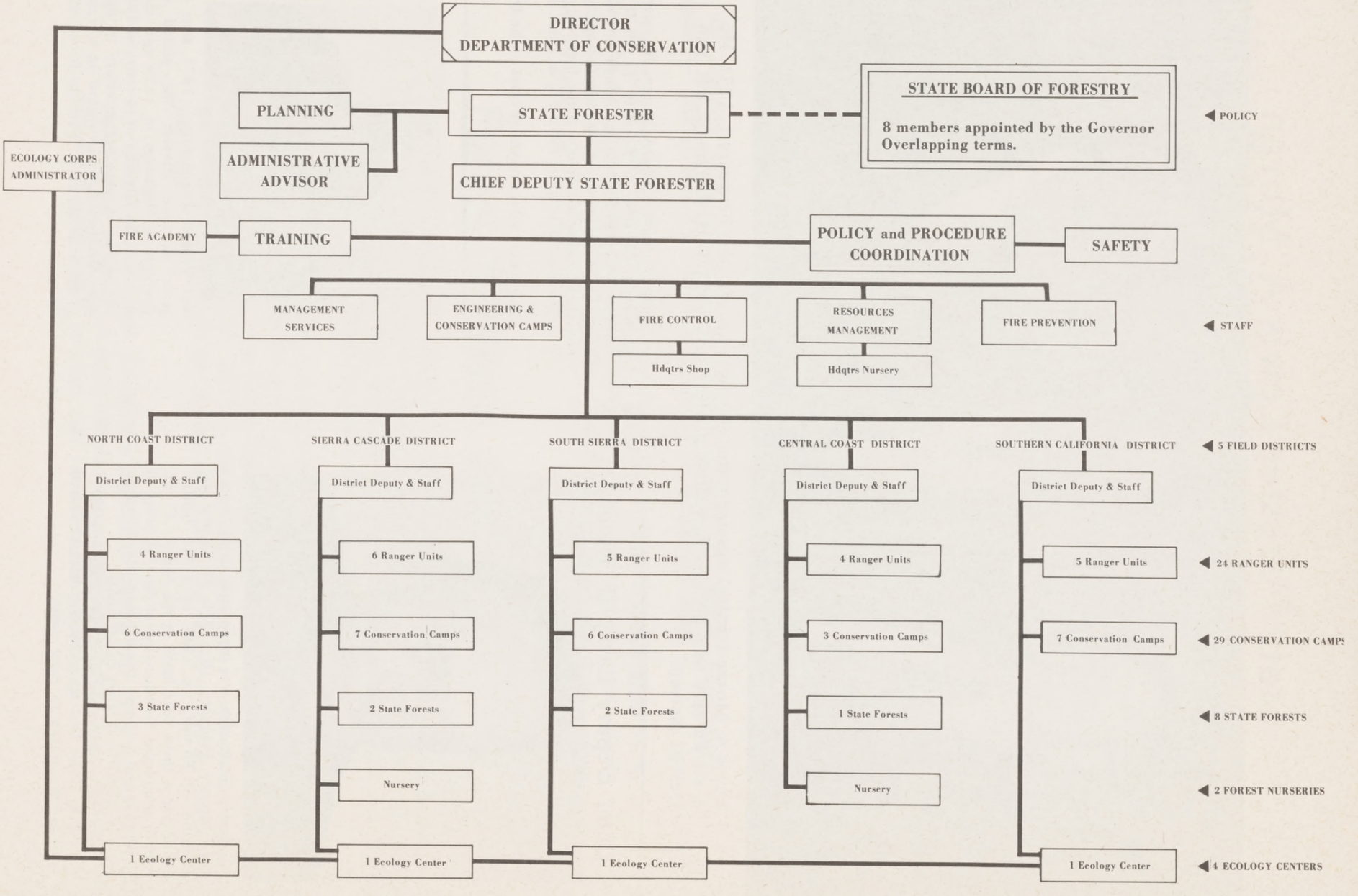
•DIVISION OF FORESTRY•



December 31, 1971

Executive

Task Force on California's Wildland Fire Problem

Following the 1970 conflagration, Director of Conservation James G. Stearns was requested to form a Task Force on California's Wildland Fire Problem by Secretary for Resources N. B. Livermore, Jr. State Forester Lewis A. Moran was assigned by Director Stearns to lead this group, which included a cross-section of fire protection agency, industry and citizens groups representation.

Considering the problems of fire prevention, fuel management and hazard reduction, zoning, subdivision codes and land use, building codes and construction materials requirements, and fire control, the report was to be filed with Secretary Livermore early in 1972. It contains 42 recommendations, which, if implemented, will aid substantially in meeting the wildland fire problem.

State Forester Moran appointed five sub-committees to make the study. The fire prevention sub-committee was chaired by Howard Moore, deputy state forester in charge of fire prevention and law enforcement for the Division of Forestry. Carl Wilson, assistant director for the Pacific Southwest Forest and Range Experiment Station, chaired the sub-committee for the study of fuel management and hazard reduction. Don Wolfe, planning director for Tulare County, headed the sub-committee that studied zoning, subdivision codes, and land use. The sub-committee on building codes and construction material requirements was chaired by State Fire Marshal Al Hole. John Hastings, deputy state forester in charge of fire control for the Division of Forestry, chaired the sub-committee studying fire control.

The state forester moderated a panel consisting of these sub-committee chairmen at the annual winter meeting of the Northern California Section of the Society of American Foresters in the Kaiser Center, Oakland, December 4, 1971.

Training Activities

1971 can be considered a year of great progress in division training activity.

A formal long-range Fire Control Training Plan was developed and adopted and initial implementation steps taken. Training material development teams were selected for a large fire management course, a service boss course, a modified fire fighter training course, an airco course and a helitack course. Courses are being developed for presentation in the fall and winter of 1972-73.

A comprehensive Management Development and Selection Plan for all interested administrative and technical personnel is in the final stage of development and plans are to implement it in April, 1972.

Negotiations were begun with San Joaquin Delta College for accredation for fire control training courses given at the Fire Academy.

As in past years, major training activities were centered at the division's Fire Academy at Ione.

Two pilot sessions of the supervisory management courses for fire crew foremen and correctional officers were conducted and the course has now been adopted as required training for all conservation camp personnel. Development effort for a supervisory management course for ranger I-level personnel was initiated during this period and pilot sessions for the winter and spring of 1972 are planned.

The academy staff developed a five week special fire control and academic education program for career opportunity development employees to be given in January, 1972.

Academy staff and fire control specialists from the state forester's office developed and conducted an initial attack fire analysis study designed to identify training needs, equipment needs and operational problems associated with fires of this magnitude. The project included field observation, participant interviews and team analysis and will be expanded for the 1972 fire season to gather and analyze as much significant data as possible.

Highlights of academy training activities for the year include four standard basic fire control courses - a total of 2,136 man days of training; two 10-day seasonal fire apparatus engineer courses - 400 man days; one heavy fire equipment operator course - 425 man days; extended attack fire management - 100 man days; initial attack instructor training - 76 man days; plans boss - 150 man days; fire prevention and law enforcement - 2,671 man days; fire crew foreman - correctional officer supervisory management - 96 man days; automotive tune-up - 144 man days; facility maintenance - 136 man days; electrical codes - 44 man days; California Ecology Corps - 36 man days; a grand total of 6,414 man days of training at the Fire Academy.

Specialized training assignments for division personnel included participation in the following programs sponsored by other public agencies and private concerns: California Fire Services Staff and Command School, Arson and Fire Seminar, Fire Department Management Seminar, advanced refrigeration maintenance, air conditioning maintenance, computer languages, report and letter writing, and a variety of technical and managerial courses offered by the State Personnel Board Training Division.

Total training effort by program, including training carried on at the academy level, districts, ranger units and camps for both permanent and seasonal employees is as follows: Fire prevention 5,248 man days; fire control state responsibility 34,395 man days; fire protection local government 19,461 man days; forest, range and watershed management 618 man days; conservation camps 4,276 man days; ecology corps 207 man days; civil defense and other emergencies 204 man days; general support 5,552 man days; grand total 69,941 man days.

Physical Fitness

Establishment of the improved forestry safety member retirement system-maximum entry age 31, normal retirement age 55–assumed that a physically vigorous work force was necessary to protect public life and property.

To assure a reasonably fit work force, more rigorous physical and medical standards were developed by the department and approved by the State Personnel Board. Based on a study of the job requirements for each forestry safety class, the standards set up *minimum* physical and medical criteria for safe and effective job performance. They were schedules for application in entry civil service examinations in early 1972. Employees age 55 and over who plan to continue working through the 1972 fire season will also be examined.

Work has also begun on developing a physical fitness program to assit safety members to meet the standards and stay in shape year-long. The first group of employees will try out the program in mid-1972.

Safety and Accident Prevention

The Division of Forestry's accident injury rate increased in 1971, although the actual lost-time injuries were the lowest on record–191 compared with the previous record of 262, set in 1969.

The following chart shows annual figures for lost-time injuries per million man-hours exposure for 1971. The goal established under Governor Reagan's accident reduction program was 14.9 for the division.

Yearly Injury Rate of Division of Forestry Personnel

Calendar Year	Lost Time Injuries
1964	44.23
1965	53.71
1966	42.99
1967	45.9
1968	22.1
1969	21.6
1970	20.7
1971	25.1

On the bright side of the accident prevention program is the excellent showing in a reduced vehicle accident rate. From July 1970 to June 1971 the rate was 10.7 accidents per million miles driven as compared to 12.3 for the previous 12 months. The state service rate as a whole was 9.6 which, when considering the hazardous nature of forestry work and type of roads used, makes a more favorable picture. The division's rate is better than many departments where mostly automobiles are driven. Progress was made in reducing backing accidents.

Beginning with this year, accident prevention achievements are recognized and safety plaques awarded to districts, ranger units and conservation camps-ecology centers.

Sierra Cascade District has managed to win the contest among districts for five consecutive years. The district's rate was 17.0 lost-time injuries per million man-hours of exposure time.

Ranger units establishing the best records in their districts in 1971 were:

Amador-El Dorado, supervised by Ranger Ted Waddell, had a zero injury rate. (Ranger Waddell has now supervised for four years with only one lost-time injury occurring to his staff.) *South Sierra District.*

San Bernardino, supervised by Ranger Jack Burke, had a zero rate. *Southern California District.*

Tehama-Glen, supervised by Ranger Howard Bromwell, had a 5.26 rate. *Sierra Cascade District.*

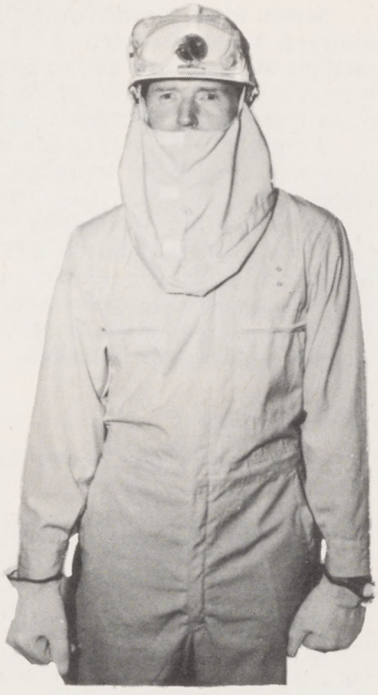
San Mateo-Santa Cruz, supervised by Ranger John Odgers, had a 11.6 rate. *Central Coast District.*

Mendocino, supervised by Ranger Tom Neil, had a 16.1 rate. *North Coast District.*

Although these ranger units had the best record in their respective districts, several other units did very well: *Lassen-Modoc,* 7.4; *Nevada-Yuba-Placer,* 7.52; and *Siskiyou,* 9.76.

Individual employees who did not require professional medical treatment for an occupational injury or illness and who did not damage equipment during 1971 was awarded a safety decal to place on his hard hat as recognition for his safe performance.

The division is continuing its research on protective clothing.



Ranger Bill Harrington is shown here modeling a new firefighter's Nomex jump suit and hood.

Personnel at one station in each ranger unit will be outfitted in Nomex jump suits in 1972 so a final evaluation can be made. Nearly all ranger units are equipping their personnel with hoods like that pictured. The hoods work out well during the 1970 fire season and have been modified in accordance with recommendations from field personnel.

Seat belts have proved they *save lives.* In this picture is mute evidence– a division vehicle involved in a head-on crash; the driver, wearing his seat belt, suffered only minor injuries. The other driver died.

Division management has been concerned about unsafe practices going unheeded until an injury accident eventually results. It is only when supervisors look for unsafe acts or conditions before the fact of an accident that real accident prevention in operations is realized. Fortunately, first-line supervisors and employees are beginning to get more involved in accident prevention. This is one reason for a decrease in vehicle accidents, particularly those involving backing-up of trucks.

A special poster on common safety regulations has been developed to remind employees to keep safety in operations. Along with the poster is the thrust to determine if there has been a degree of failure on management's part to see that common safety practices and regulations are adhered to by employees.

Planning Coordinator

The California Region Comprehensive Framework Study was completed in 1971. This study was completely reviewed by the planning coordinator and other staff. Several corrections, additions and alternative approaches were suggested, many of which were accepted into the final 18 volumes of the study.

The planning coordinator continued to work on the Protected Waterways Program interdisciplinary planning team under contract to the Resources Agency. Early in 1971 the team's report *California Protected Waterways Plan - Initial Elements* was accepted and forwarded to Governor Reagan and the Legislature. Subsequent legislation authorized the detailed studies called for in the plan and late in 1971 the original task force recommended a course of action to continue the Protected Waterways Program.

Three land use planning seminars were held in 1971 in Fresno, Sacramento and Redding. The seminars were a joint effort of the Division of Forestry, U. S. Forest Service, and the University of California at Davis Extension Division who produced the seminar program.

Attendance at the seminars included foresters, planners, and administrative personnel from the division, U. S. Forest Service, local county and regional planning commissions and staffs and some private groups. Unique planning problems in forest land development were discussed and innovative training methods were used.

The objective was to create an awareness of environmental problems and search for methods of intergovernmental cooperation in land use planning. The seminars were successful and additional sessions were scheduled for 1972 to reach more employees.

Passage of stricter rural subdivision review procedures, local planning requirements, and environmental impact procedures by the 1971 Legislature created a flurry of activity which also proved the worth of the land use planning seminars.

The planning coordinator served on the steering committee for the continuing review and design of the emergency fire dispatching system in conjunction with System Development Corporation.

Inputs to the original design of division response to the federal Public Employment Program were made.

Open space legislation and criteria were monitored and reviewed for effects on division activities and timber land management.

A review of personnel practices for division employees was accomplished through the *Item 7 Task Force.* The planning coordinator served on this task force to help with methodology and the relationship to other system plans.

Several state and federal cooperative planning applications were written and coordinated. These included:

1. A Housing and Urban Development (HUD) grant to analyze fire protection systems, the relation of wildland protection and structural protection, and possible fire services rules. This is a two-year study along the lines of a study originally suggested by the legislative analyst.

2. A grant from the State Water Resources Control Board to provide data related to watershed conditions, fire protection, sedimentation, and wildland soil conditions for the Statewide Water Quality Control Plan.

3. A grant from the U. S. Forest Service to coordinate private land forest resource problems with the various agencies interested in comprehensive planning in the Lake Tahoe Basin.

4. Grants for economic, forest resource and timber products planning in the North Cal Neva Resource Conservation and Development Project. During the year this RC&D project was expanded to include Lassen County and is now known as the Lassen-Modoc RC&D.

The planning coordinator served on the technical committee for planning the Gold Rush Parkway in the Sacramento-Mother Lode area. The final report for this effort was furnished the Gold Rush Parkway Authority in December.

The coordinator served on a joint federal-state "over the shoulder" planning team formed to assist Tulare County as authorized by Senate Resolution 202. This team consulted with Tulare County planners to help provide interim guidelines for the preparation of an environmental resources management element of the county general plan. The environmental resources management element is envisioned as a coordinated comprehensive vehicle for the separate conservation, open space, scenic highway, and recreation elements presently required under state law of city and county general plans.

The planning coordinator served as chairman of an ad hoc committee of the Society of American Foresters concerned with the registration and licensing of the forestry profession.

New Requirements Reviewed

New requirements for review of environmental impacts and concern for public and agency inputs to various state, federal and local projects created a large workload. Plans and proposals for several wilderness areas (Aqua Tibia, Yosemite National Park, Redwood National Park, Salmon-Trinity Alps and Point Reyes National Seashore) were reviewed. Land use planning efforts in Monterey, Tulare, Los Angeles, and other areas were reviewed.

The proposed Earth Resources Technology Satellite (ERTS) and Earth Resources Orbiting Satellite (EROS) projects were analyzed and possible satellite use data for division programs was provided. These satellites will be launched by National Aeronautics and Space Administration (NASA) 1972 and 1973.

Several forest taxation problems and proposals were analyzed. Forest Service timber management plans and multiple use plans were analyzed for their effect on local communities and Division of Forestry programs. Many other environmental impact statements were reviewed.

A project on reinvestigation and adjustment of the fire protection area for which the state accepts wildland protection responsibility (the state responsibility lands) was completed and approved by the Board of Forestry.

The planning coordinator spoke to interested school and other groups on ecology, population problems, brush burning, and forest economics. Conferences on information and education, forest products research, and land use problems were attended.

Land Use Team Organized

The planning coordinator was appointed to a land use study team organized to assist the Office of Planning and Research in the preparation of the State Development Plan.

Several federal and state legislative and court matters were studied to assist the state forester in reaching a position. These included the national timber policy proposals, state land use and zoning legislation, legislation on coastal protection and waterways protection, the unconstitutionality of the Forest Practice Act, open space legislation, regional planning and Lake Tahoe legislation.

Board of Forestry

Salsbury

Reed

Johnston

Carter
Chairman

Nakae
Vice Chairman

Barnes

Crane

McGuire
(replaced by Barnum)

The Board of Forestry–eight members, appointed by the Governor for staggered terms of four years each–is charged by the Public Resources Code to ". . . represent the State's interest in the acquisition and management of State Forests as provided by law and in federal land matters pertaining to forestry, and in the protection of the State's interests in forest resources on private lands . . ."

The board was created March 18, 1885, with three members. By 1971, changes in the law expanded the membership to eight.

Three new members were appointed by Gov. Ronald Reagan in 1971: E. Lamar Johnston of New Cuyama, replacing the late Paul Aurignac representing range and livestock interests; C. Robert Barnum of Eureka, replacing Kelly McGuire as representative of the redwood industry; and Franklin L. Barnes, Jr. of Julian, filling a newly created "public" seat.

Board Meets Monthly

Twelve regular monthly meetings of the board were held in 1971. Five meetings were held in various parts of the state--Eureka, Chester, Porterville, Redding and San Diego, where field trips were conducted to enable board members to become acquainted with local problems and needs and also provide them with on-the-ground information on current conditions in the wildland areas. Seven other meetings were held in Sacramento.

Individual board members attended meetings and conferences on forestry and conservation matters throughout the state in addition to regular board work. They also participated in Timber Maturity Board meetings in several counties to assist in determining the maturity of timber on cutover lands.

During 1971 the board received requests for approval of 18 new *Alternate Plans of Forest Practice* and eight amendments to plans previously approved. After hearings, the new plans and amendments were approved. One large-acreage plan approved for Simpson Timber Co. was later rescinded at the company's request.

Following a series of reports by Division of Forestry personnel on the *1970 Rezoning Project to Delineate State Responsibility Areas for Fire Protection* the board held two public hearings and in December formally adopted its findings.

Boise Proposal Decided

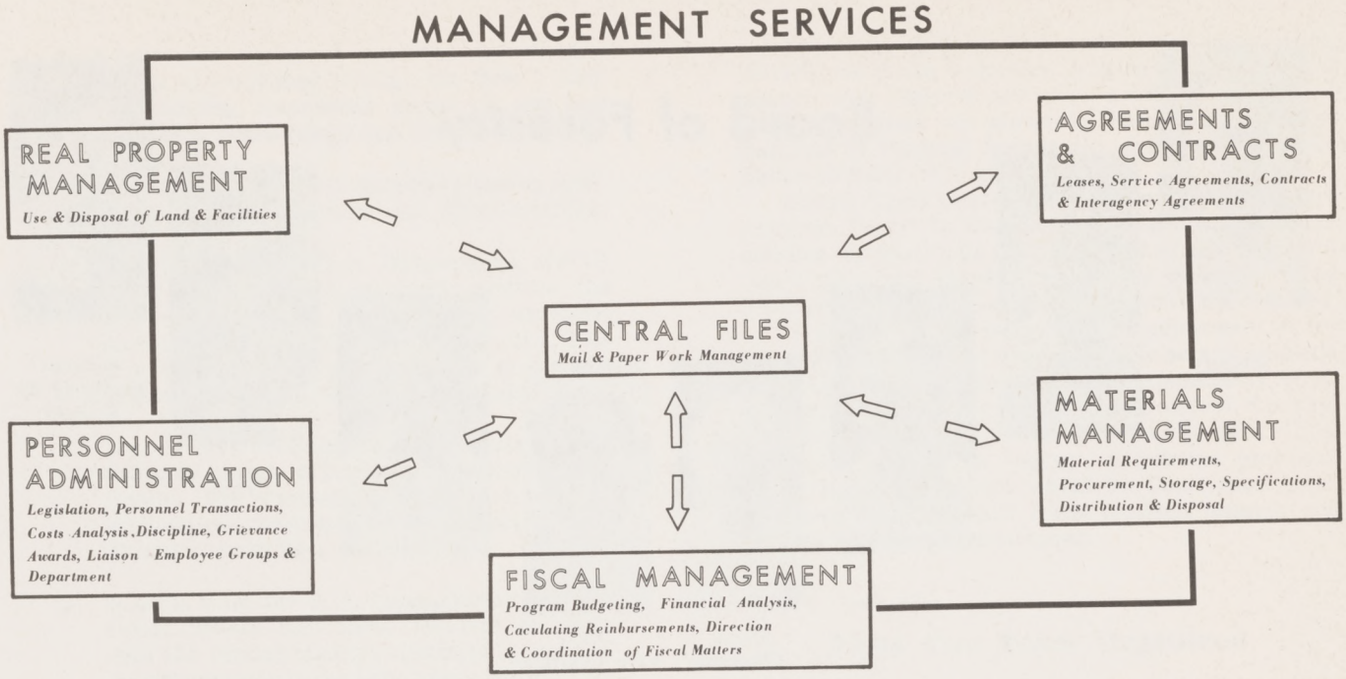
A proposal by Boise Cascade Corp. to exchange corporation-owned beach lands on the Mendocino Coast for timber lands of comparable value within Jackson State Forest was heard by the board and an ad hoc committee, appointed by the board chairman to study the proposal.

The board subsequently instructed the state forester to identify Jackson State Forest lands in the order of their importance to the operation of the forest; and then adopted a resolution accomplishing the exchange so that the beachlands could be absorbed into the state park system.

Board Seeks Clarification

The board requested the attorney general to clarify the roles of the South Sierra Forest Practice Committee and the Tahoe Regional Planning Agency in regulation and enforcement of forest practices in the Tahoe Basin. The attorney general ruled that the Forest Practice Act did not preempt or preclude regulation by Tahoe Regional Planning Agency of harvesting of commercial timber in the basin to achieve the purposes and objectives for which the TRPA was created under the Tahoe Regional Planning Compact.

The board also reviewed the Division of Forestry budget and other legislation related to forestry matters.


MANAGEMENT SERVICES
REAL PROPERTY MANAGEMENT
Use & Disposal of Land & Facilities
AGREEMENTS & CONTRACTS
Leases, Service Agreements, Contracts & Interagency Agreements
CENTRAL FILES
Mail & Paper Work Management
PERSONNEL ADMINISTRATION
Legislation, Personnel Transactions, Costs Analysis, Discipline, Grievance Awards, Liaison Employee Groups & Department
MATERIALS MANAGEMENT
Material Requirements, Procurement, Storage, Specifications, Distribution & Disposal
FISCAL MANAGEMENT
Program Budgeting, Financial Analysis, Caculating Reinbursements, Direction & Coordination of Fiscal Matters

The Management Services Section of the state forester's staff provides essential assistance and services to other staff sections in developing management plans and carrying out managerial activities. Particular areas of responsibility include collecting and analyzing data; estimating costs; budget planning and preparation; and support and assistance in optimum utilization of resources, especially manpower. Management Services also assists and provides guidance in purchasing; storing supplies and equipment; and in property and records management.

On December 31, 1971, there were 2,972 year-long employees, and at the peak of the fire season total employment reached 4,717 including seasonal apparatus engineers and firefighters.

The year was one of both difficult and challenging adjustments to meet fiscal restrictions and changing conditions. Because of declining inmate populations in the conservation camps and the conversion of four camps to ecology centers, camp strength was reduced by 32 state forest ranger I and 37 fire crew foreman positions. However, the division gained 13 state forest ranger I positions in the air attack program and augmentation in dispatch fire captain positions.

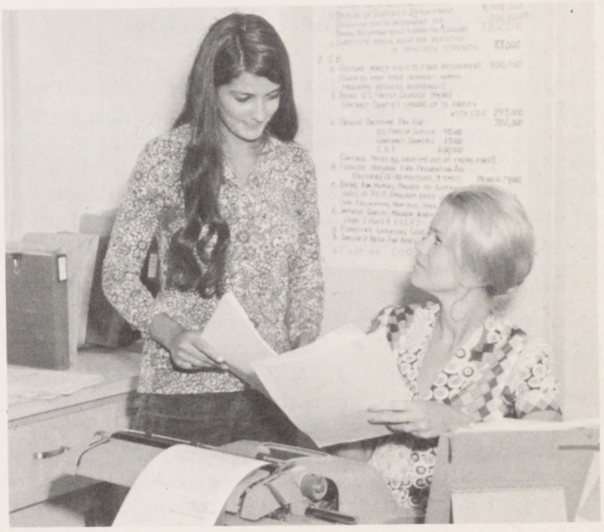
Considerable progress was made in implementing the new ranger unit organization and staffing plan, following last year's consolidation of several ranger units. The State Personnel Board approved a new series specification for the state forest ranger classes and adopted title changes to conform to the four classes in the series. Important reclassifications approved by the Board were the positions of ranger unit administrative officer and district office business manager, both to state forest ranger II from associate state forest ranger.

The 1971 Legislature passed Assembly Bill 114, which reduced the duty week of Division of Forestry fire suppression classes from 96 to 84 hours. This legislation was effective July 1, and the reduced duty week was in operation for most of the 1971 fire season.

The state's new overtime policy – permitting premium (time and one-half) pay for overtime – went into effect this year. Under this policy, but with limited funds, the Department of Conservation was able to authorize cash payment for overtime – up to 40 hours for fire suppression classes.

Assembly Bill 1330 passed, giving "forestry safety membership" credit for service retirement for prior service as forest fire dispatcher or forestry field clerk and dispatcher. Last year's retirement legislation made it possible for Division of Forestry employees to retire at half-pay with 25 years of service at age 55, but did not include dispatchers.

A task force was established to critically review the division's policies and procedures in materials management; considerable progress was made in developing a more effective and efficient system of purchasing and distributing materials and supplies.



During 1971, 732 excess federal property transfer orders were processed. The federal government's acquisition cost of items acquired by the Division of Forestry during the year was $1,449,000; the cost to the state for those items obtained under the 20 percent reimbursement category totaled $1,334.

Retired Employees Listed

Twenty eight employees, many of whom completed long careers with the division, retired during 1971:

Frank M. Anderson, State Forest Ranger I
Byrd L. Blunt, Fire Crew Foreman
Ernest F. Brown, Fire Crew Foreman
Leslie A. Brown, State Forest Ranger I
Austin J. Chase, Fire Crew Foreman
James B. Coulter, Heavy Fire Equipment Operator
Don R. Elliott, Fire Crew Foreman
Emery S. Escola, Assistant State Forest Ranger
Richard C. Flynn, Fire Captain
Godfrey D. German, State Forest Ranger II
Robert F. Harris, State Forest Ranger II
James W. Hibpshman, Fire Crew Foreman
John E. Howell, Assistant State Forest Ranger
William T. Jacobson, Assistant Deputy State Forester
Howard L. LaPlant, State Forest Ranger II
John L. Lewis, Assistant State Forest Ranger
George Marten, Accountant I
Harry McKeen, State Forest Ranger III
Elmer F. Osterman, State Forest Ranger IV
Waldo J. Sherman, State Forest Ranger III
William J. Shimer, Assistant State Forest Ranger
Roy T. Snelson, Fire Apparatus Engineer
Vernard L. Stoops, Assistant State Forest Ranger
Clarence G. Tedrow, Heavy Fire Equipment Operator
Art Tobin, Fire Crew Foreman
Nell Weldon, Secretary I
Vernon C. Williams, Assistant State Forest Ranger
Denver P. Wood, Assistant State Forest Ranger

DIVISION OF FORESTRY BUDGET
Fiscal Year 1971-72

Summary:

(1)	Fire prevention: state responsibility	$ 2,602,088
(2)	Fire control: state responsibility	31,644,906
(3)	Fire protection: local government contract	9,256,847
(4)	Forest, range, and watershed management	2,240,802
(5)	Conservation camp	3,552,593
(6)	Ecology corps	1,042,881
(7)	Civil defense and other emergencies	109,932
(8)	General support	4,148,006
(9)	Capital outlay	200,000
	Sub-total	$54,798,055
	Reimbursement	-12,515,446
	TOTAL NET BUDGET	$42,282,609

Program Changes:

1. Changes initiated to increase the effectiveness of the fire control element.

   a. Dispatch and Communication — 360,000
   Funds were made available to begin strengthening the dispatch system in accordance with recommendations of a private consulting firm.

   b. Air attack component — 239,000
   In order to achieve optimum benefits from the air attack operation, State Forest Ranger I positions were authorized at each of the thirteen airbases and 14.5 man years of seasonal firefighters to mix and load fire retardants, conduct maintenance work and other general labor.

2. Establishment of the California Ecology Corps. — 1,043,000

3. Organizational changes resulted in the following expenditure reductions:

   a. Completion of the closure of the District III headquarters office. — -132,000

   b. Completion of consolidation of 10 ranger units. — - 74,000

   c. Decreasing inmate workload, tightened staffing standards and closure of 5 Conservation Camps completed. — -455,000

4. Significant program reimbursement increases:

   a. Identification of indirect program costs through the program time reporting system resulted in an increase in collection for services provided in the performance of the fire protection responsibilities of local government. — -525,000

   b. It has been estimated that the services of corpsmen assigned to the Ecology Centers will provide additional reimbursable services. — -408,000

Engineering and Conservation Camps

Engineering and Construction

The Engineering and Conservation Camps activity performs in a dual role. Engineering and construction responsibilities are principally concerned with establishing and maintaining standards, and performance of necessary work related to land acquisition; mapping and surveying; graphics, and design, construction, and maintenance of facilities.

The conservation camps are operated jointly with the Department of Youth Authority (wards), and the Department of Corrections (inmates). They are designed to provide a living-and-working experience in a beneficial outdoor environment that will be conducive to rehabilitation of wards and inmates assigned to the camps. In addition they function to provide an essential trained force that is highly effective for firefighting and other resource protection and conservation work.

A barracks-messhall combination building was completed in 1971 at the Bieber Forest Fire Station. Structures based upon the division's medium standard design were completed at the Diddy Wells Forest Fire Station, including a messhall, a barracks building and a gasoline and oil building.

Utilizing minor capital outlay funds available, 40 projects were completed. These include office expansions, individual barracks and messhall buildings, one helitack facility, four air attack bases, seven communications facilities, including three radio vaults incorporating solar energy cells for power; three lookout improvement projects and other smaller projects involving site development and water storage facilities.

The only privately-owned site acquired was a small addition to the Catheys Valley Forest Fire Station in Mariposa County through gift deed. The U. S. Forest Service transferred title to the state for three lookout sites – Inskip and Campbellville in Butte County and Digger Butte in Tehama County. They also transferred the structures at Bald Mountain Lookout in Butte County to the state.

A slight increase in the division's fire access truck trail system brings the total road mileage to 3,897. The number of bridges remain static as did powerline mileage. The miles of telephone lines owned and maintained by the Division of Forestry decreased by 161 miles from a total of 890 miles in 1970. This is a continuing trend due to the extension of commercial services into the more remote areas of the state.

The Delineation and Graphics Unit handled 362 job requests during the year. This represents an increase of nearly one-third over the prior year activity. Two ranger unit maps were updated and a new format was developed utilizing U. S. Geological Survey quadrangles as the base for mapping ranger unit areas.

A pilot project training course has been developed dealing with inspection and maintenance of the division's facilities. The Central Coast District will be the first district to explore the applicability of this course to their needs.

Headwalls protect culverts that prevent soil erosion by rechanneling rainwater.

Meeting the Manpower Needs

THE CONSERVATION CAMP PROGRAM

The availability of minimum security adult felons has been steadily decreasing for several years and in 1971 reached a point at which a reduction in adult conservation camps operated with Department of Corrections became necessary. During the 1971 calendar year the number of CDC adult camps was reduced from 33 to 24 with a budgeted inmate population of 1,640.

To replace this loss the La Cima Conservation Camp was converted to the housing of San Diego County prisoners. The custodial personnel are San Diego County employees. The budgeted quota for this camp is 80 inmates.

Further replacement of the lessening numbers of state adult felons was accomplished by the conversion of four adult state conservation camps to ecology centers as part of the California Ecology Corps.

The youth conservation camps remained four in number.

Work Performed by Conservation Camps During 1971

ACTIVITY	Man-Days	Sub Total	Percent of Total
Wildfire Suppression:			
Division of Forestry	40,697		
U.S. Forest Service	1,056		
Counties	328	42,081	6.79
Presuppression and Facilities:			
Maintenance of Remote Facilities	3,727		
Forest Fire Station Maintenance	24,019		
Truck Trails	25,202		
Maintenance of Telephone Lines	3,191	56,139	9.06
Fire Defense Improvements:			
Fuelbreaks	130,313		
Hazard Reduction	18,713	149,026	24.05
Forest, Range, & Watershed Management:			
State Forests	14,367		
Nursery	6,638		
Seed Collecting & Processing	2,731		
Forest Revegetation	873		
Forest Insect & Disease Control	5,480		
Range	200	30,289	4.88
Incamp Projects:	42,179	42,179	6.80
Camp Services:			
Department of Corrections	87,008		
Division of Forestry	38,950		
Youth Authority	12,978	138,936	22.42
Other Services:			
Building & Equipment - Maintenance and Construction	44,621		
Training	12,178		
Department of Fish & Game	8,963		
Department of Parks & Recreation	33,612		
Department of Water Resources	3,316		
Other Agencies	3,279		
Search and Rescue	892		
Blood Donation	344		
Miscellaneous Projects	53,578	160,783	26.00
	TOTALS	619,433	100.00

California Ecology Corps

The California Ecology Corps was officially established by Governor Reagan on April 27, 1971.

The declining inmate population in conservation camps since 1966 was the primary reason behind the state's need to find an alternate source of trained manpower for the wildland fire problems in California. The continuing success of the Department of Corrections' rehabilitation program made it plain that it was vitally necessary to establish a work force of free people to accomplish the Division of Forestry's necessary public projects into the years ahead. The ecology corps is one of the answers.

On July 1, 1971, three ecology centers were activated in Humboldt, Tehama and Calaveras Counties. On August 15, 1971, the fourth center opened in Inyo County.

Originally, the centers were manned with conscientious objectors. Due to the change in the draft laws and subsequent new rules and regulations regarding induction in the alternate service program, recruitment of conscientious objectors did not occur rapidly as had been expected. On December 1, 1971, a recruitment program for non-conscientious objectors, young men 18-31, was started. On July 1, 1972, a total of 350 corpsmen were involved in the program.

Ecology corpsmen perform a variety of conservation-related projects. Here a corpsman is shown trimming hazardous tree limbs around camping areas.

The California Ecology Corps has been successfully established in less than a year and the recruits have been organized into productive crews. A look to the future indicates a substantial expansion in the program as other public agencies turn to these crews more and more to accomplish the purposes for which they receive public funds.

The comparison must be drawn with the pre-World War II Civilian Conservation Corps.

Career Opportunity Development

The Career Opportunity Program (COD) is an attempt to bridge the gap between the job requirements at a career level in the division and the lack of education and skills often found with the disadvantaged - poor people.

The division annually hires 150-200 disadvantaged youths as part of the compliment of seasonal fire fighters. After a summer of fire fighting, 30 were selected for further training and advancement into career positions. Following the fire season these men will be retained on the payroll and sent to the division's fire academy at Ione for five weeks of intensive training. They will receive a similar course of instruction as is given to the fire apparatus engineers - a position which is considered to be the first step in the career ladder.

Following their training, COD employees will be qualified for and will have an opportunity to take the regulat civil service examinations for fireman CDF and fire apparatus engineer. They will have two years of employment to successfully qualify for either of these positions or will be dropped from the program.

The Public Employment Program

PEP - the Public Employment Program - is a federally sponsored effort (90-10% federal/state matching funds) to put people to work in public service activities where the need is greatest. The program was authorized by the Emergency Employment Act signed by President Richard M. Nixon in July 1971.

Eligibility by the individual being either unemployed or working at the poverty level. Qualified Vietnam - era veterans were given preference.

Three hundred positions were allotted to the Division of Forestry. The greatest need, of course, was for fire fighters so the bulk of them were assigned there. Some were assigned to clerical or cooks positions. In any event, each individual received the prevailing wage rate for his assigned position.

There was no attempt to treat these people any differently than other employees. Fire fighters were intermingled with regular crew members and worked the same hours.

They were selected through personal interviews by a division representative in each of the five administrative districts working in cooperation with the local office of the State Department of Human Resources Development.

The program has proved highly successful. The fire fighting strength of the division was substantially bolstered, supervisors are satisfied with job performance, and turnover has been low.

Fire Control

The primary objective of the Fire Control Program is the control of wildfires on state responsibility areas, holding damages at a level which will not impair the yield of economic goods and social benefits from these wildlands. This objective is assured by containing all uncontrolled fires as soon as possible, in most cases with initial attack forces, and at least by 10:00 a.m. of the day following first report. Principal program responsibilities are fire control planning and operations, civil defense and other emergency operations, and statewide dispatching of fire control forces.

Fire Control Section

The state forester has delegated authority for fire control to a unit of his staff known as the "Fire Control Section". Under the direction of a deputy state forester, this section has staff responsibility for the following functions:

Division fire control operations.
Cooperative fire control operations.
Contractual protection with local and federal governments.
Dispatch and communications.
Air attack operations.
Mobile equipment management.
Fire protection analysis and planning.
Operational research and development.

The 1971 fire season was characterized by:

A cool wet June that retarded the start of the season.
Persistently hot weather through July, August and September.
Low lightning incidence.
Late arrival of fall rains in Northern and Central California.
Recurring offshore Santa Ana winds in Southern California beginning in September.

The relatively favorable aspects of the 1971 fire season were reflected in the comparatively small area burned by wildfires during the year. Only in 1963 has the annual area burned been smaller than the 45,000 acres burned in 1971. This near record low for acres burned was achieved in spite of the continuing high occurrence level of about 7,000 wildfires per year.

On land directly protected by the Division of Forestry, there were very few fires of over 300 acres last year and no large conflagrations of the type that occurred all too often in 1970. The only serious conflagration of the year in the state was the 14,000 acre Romero Fire in the Los Padres National Forest and Santa Barbara County. With that one exception, 1971 was a very good year for the wildland fire suppression agencies in California.

Fire weather of the 1971 fire season

There were some features of the fire weather that were favorable and others that were quite unfavorable, but in balance 1971 emerged as a rather unexceptional year from the standpoint of fire weather.

The pre-season moisture outlook varied rapidly. Following an early winter moisture surplus, there was a dry February followed by a wet March, and then by a dry April. But relatively heavy rainfall in May provided a late start to the fire season in the northern portions of the state. The total precipitation for the year ending June 30 showed generally above normal amounts north of a line from Monterey to Tahoe and all along the Sierra crest. The greatest deficiencies were along the south central coast and the southeastern portion of the state.

June was a relatively cool month throughout the state with greater than normal precipitation along the Sierra and the northeastern portion. July was nearly normal as regards temperature, and very little precipitation was recorded. August was a persistently hot month with several heat records. For example, San Diego recorded its hottest August. Red Bluff and Blue Canyon set new single day high temperature records. During the month, there were a few wet thunderstorms in the Sierra, several of them over the southeastern regions and at the end of the month a widespread occurrence of them over the northern portion of the state.

September was also a persistently hot month throughout the state. The month brought the first offshore Santa Ana wind pattern to southern California. These patterns recurred with regularity throughout the rest of the year. Precipitation for September was uniformly deficient, except along the north coast and in the northern counties late in the month.

October brought some very warm periods, but on the whole was everywhere cooler than normal. Precipitation was also deficient in October, especially over the northern third of the state.

November began warm and dry but, by the 12th, sufficient rainfall had accumulated to allow closing of fire season everywhere except in the Southern California District. Here, the recurring pattern of light rains alternating with offshore wind continued, and it was necessary to wait until December 15 for sufficient rain to allow closing of the season.

One of the plus factors of the season was the small number of lightning-caused fires. The number was the lowest in the ten-year period, 1962-1971, and only one-half of the average number for this period.

The statewide summary of accumulated fire weather severity for the June through October period shows that the effects of the cool, wet June weren't overcome for sometime. In spite of the steady rise in the fire weather severity through July and August, it wasn't until mid-September that the seasonal severity exceeded normal; it remained slightly above normal through the rest of the period. The statewide fire weather severity, as represented by 12 sample fire danger rating areas, shows 1971 as the sixth most severe of the ten years 1962 through 1971, and almost exactly equal to the average of those years.

Fire Control Organization

During 1971 the division's fire control organization included:

- 237 initial attack fire crews operating 374 firetrucks.
- 58 initial attack bulldozer and transport units.
- 2 helitack crews.
- 21 airtankers operating out of 13 air attack bases.
- 2 aerial fire detection patrols.
- 79 fire lookouts.
- 33 conservation camps, ecology centers, youth camps and county inmate camps.
- 23 ranger unit headquarters providing administrative, logistic, and dispatch support for the fire control organization.

Several administrative unit changes became effective January 1, 1971. The Central Sierra District was dissolved, portions of the district being consolidated to the north with the Sierra Cascade District and portions to the south, with the South Sierra District.

The Sierra Cascade District now extends from the Oregon border south through Placer County. The South Sierra District is bordered on the north by El Dorado County and on the south by Kern County.

The state forester also consolidated some ranger units for the purpose of equalizing work loads. The following consolidations reduced the Division of Forestry's number of ranger units to 24:

Lake-Colusa and Napa-Solano-Yolo Ranger Units, in the North Coast District.

Nevada-Yuba and Placer Ranger Units, in the Sierra Cascade District.

Tuolumne and Calaveras Ranger Units, in the South Sierra District.

Madera-Merced and Mariposa Ranger Units, in the South Sierra District.

San Mateo and Santa Cruz Ranger Units, in the Central Coast District.

In addition, the state forester made other administrative unit adjustments, including the assignment of the Owens Valley Unit to the Southern California District and western Merced County to the Santa Clara Ranger Unit.

Several adjustments were made in the protection boundary separating areas protected by the Division of Forestry and the U. S. Forest Service. These adjustments resulted in a total of 400,516 acres being transferred from the protection area of the Forest Service to the Division of Forestry. Also, 117,824 acres were transferred from the Canyon Creek area of the Modoc National Forest to the Division of Forestry's Lassen-Modoc Ranger Unit. In the White Horse area of the Modoc National Forest, 145,457 acres were transferred to the Lassen-Modoc Ranger Unit. In the Feather Falls area of the Plumas National Forest, 57,016 acres were transferred to the division's Butte Ranger Unit. In the Weed area of the Shasta-Trinity National Forest, 80,219 acres were transferred to the division's Siskiyou Ranger Unit.

1970 Re-zoning Project Completed

The Public Resources Code states that the Board of Forestry shall classify all lands within the state for the purpose of determining areas in which the financial responsibility for preventing and suppressing wildland fires is primarily that of the state. This "classification", often referred to as "zoning", involves the application of Public Resources Code criteria to all land in California.

During 1970 an intensive "on-the-ground" study was carried out to verify, update, and delineate the zoning of California wildlands in accordance with the Public Resources Code criteria. Field work, mapping, and executive review was completed in the fall of 1970, and the project was presented to the Board of Forestry for their review and further action.

The Board of Forestry, after completing their own evaluation of the proposed zoning, notified all county boards of supervisors and the public at large that hearings would be held concerning the proposed zone boundaries. These hearings were held in Redding, San Diego, and Sacramento.

Although the actual changes in zone boundaries proposed were not large relative to total zoned area, the effect in certain areas was of local concern. During the hearings, those concerns were brought to the attention of the Board, and in several locations modifications were made to the proposed zone boundaries.

The final proposal was adopted by the Board of Forestry at its meeting in Sacramento on December 15, 1971. The new zoning reduced state responsibility area by 215,671 acres. The reduction was primarily due to increased urban and cultivated land areas which do not qualify as state responsibility area under the Public Resources Code criteria.

The 1970 re-zoning project brings the delineation of state responsibility areas up-to-date on a uniform statewide basis. It provides a firm basis for fire protection planning and for future changes necessary to reflect the changing patterns of land use in California.

Dispatching and Communications

A tri-level statewide system of dispatching is maintained to enable the suppression organization to function as a flexible mobile fire attack force. The 24 ranger unit headquarters are the first level of local dispatch. Five district office dispatch centers provide regional coordination, and the state forester's office provides statewide coordination.

During 1969 and 1970 an evaluation and recommendations for improvements in this dispatch system was conducted by System Development Corporation (SDC) of Santa Monica. As a result of SDC's report and the efforts of a division task force, several improvements were implemented during 1971.

The North Coast District instituted a running-card system of standardized dispatching; two improved dispatcher worksheets were tried statewide; voice recorders and facsimile transmission equipment were evaluated at several locations; and dispatch office staffs were supplemented at all levels in furtherance of the 1966 Dispatch Center Staffing Plan. All improvements were aimed at improving and standardizing the division's manual systems of dispatching to the point that they would be more adaptable to ultimate automated assistance.

System Development Corporation was again retained to assist the division's task force in implementation of these improvements, to evaluate and to make recommendation for further improvements, and to assist in developing a dispatcher training program. Their report on evaluation and recommendations will be released in January 1972.

During 1971 new radio equipment was purchased and installed to replace existing outmoded equipment and to implement certain planned portions of the radio system, as follows:

180 new mobile radios were installed. These were replacement units capable of operating on the state net, one district net, and one local radio net. With these radios the division was able to implement the new radio system in five more ranger units.

Nine new mobile relays were installed, of which five were replacement and four were additional.

Three new solar generators were installed. This is a milestone in the division's efforts to put into operation economical battery-operated mobile relays.

These generators use power obtained from the sun to charge 12-volt dry batteries which, in turn, power the radio mobile relay.

146 replacement handie-talkie sets, weighing about two pounds each and carried on the belt, were put into operation. These sets replaced old single frequency units weighing about seven pounds each.

Elimination of the Central Sierra District required considerable planning and expenditure of funds to reassign frequencies used by the Sierra-Cascade District and the South Sierra District in order to eliminate potential radio interference. Other adjustments to the system were made because of ranger unit consolidations or interference between fires.

The Air Attack Program

The combined CDF-USFS airtanker fleet remained at 35 airplanes through most of the 1971 fire season. One airplane was disabled in an accident in September.

The pre-season activity within California was confined to flying on several early fires for a limited amount of hours. A large portion of the California fleet was used in both Arizona and New Mexico by the Bureau of Indian Affairs and Region III of the U. S. Forest Service. Both agencies experienced abnormally heavy fire occurrence during the months of May and June.

Flight activity during the 1971 fire season was below normal, both in hours flown and in number of fires attacked. This decrease was a result of generally slower spreading and lower intensity fires due to favorable fire weather.

During the 1971 fire season, the division experienced two major aircraft accidents, which resulted in the loss of a pilot. One accident occurred late in the afternoon of August 30. A TBM airtanker, while working a fire near Placerville, struck a tree and crashed, killing the pilot and totally demolishing the airplane.

The two helitack units flew a total of 223 hours. During these flight hours, the helitack units attacked a total of 105 fires, 32 of them as the first attack unit. This activity, like that of the airtankers, was below normal and was attributed to a favorable fire season.

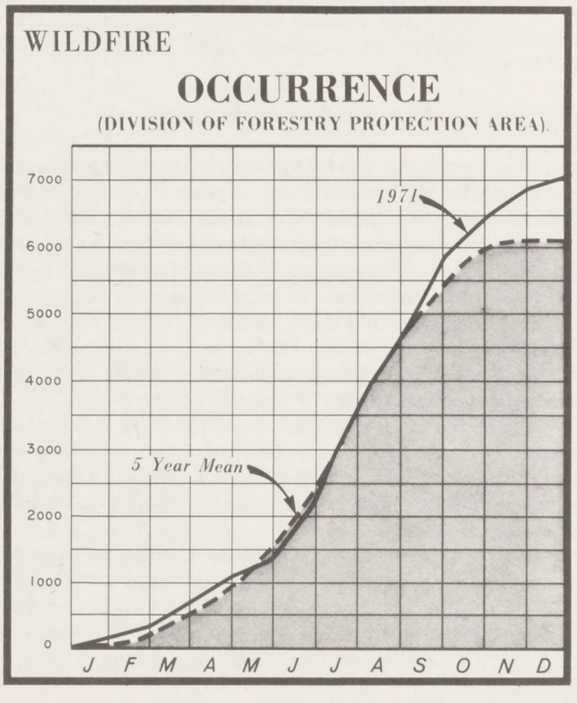
Cooperative Fire Protection

In a state as complex as California, the need for close cooperation of fire protection agencies is most essential. In no other part of the world does weather, topography, fuels and people combine to cause such catastrophic fire disasters.

While mutual aid agreements are in force throughout the fire services, it is necessary for much closer liaison to exist. Cooperation and coordination of fire control activities, where responsibilities sometimes overlap, demand effective day-to-day working relationships between agencies.

The Division of Forestry maintains close liaison with the Office of Emergency Services for disaster emergency work. In addition to fire control activities, the division stands ready with manpower and equipment to assist other agencies in the event of disasters. Division personnel also serve as radiological monitors throughout the state.

During 1971 the state forester provided fire protection to local governments through contracts with 25 counties. The program, under Section 4142 of the Public Resources Code, provides varying degrees of fire protection to counties, districts and incorporated cities. The amount and intensity of service given is determined by the county board of supervisors or governing authority. This service varies from partial protection involving one piece of fire apparatus to a fire defense program protecting entire unincorporated areas of a county. The cost of the service is fully reimbursed to the state for services rendered.



During the 1971-72 Fiscal Year, the division's contracts for protection service to local governments amounted to $10,987,561 for reimbursed expenditures and $4,103,424 for direct county expenditures, a total of $15,090,985 and an increase of 25 percent over the previous year.

The Division of Forestry continues to contract the protection of 4.25 million acres of "state responsibility lands" to the "contract counties" of Kern, Santa Barbara, Ventura, Marin and Los Angeles. The division budgeted $2.9 million to these counties during the 1971-72 Fiscal Year for a "basic protection" level covering manpower and station operational costs. The division often takes an active role in suppression assistance to these counties and, in addition to the annual contracted funds, assists with manpower and equipment, when requested, on major and campaign fires.

Cooperative agreements with federal agencies have been an important part of the division's protection program for many years. The U. S. Forest Service protects 4.7 million acres of state and private land within the national forests under a long-standing agreement with the division, and adjustments in USFS-CDF protection boundaries are regularly made to make the best use of the suppression forces of both agencies. Changes in the protection boundary in 1971 are described in the preceding section on *Fire Control Organization.*

Fire protection agreements also continue with the Bureau of Land Management and the National Park Service. The Division of Forestry and the Bureau of Land Management protect off-setting areas of each other's lands in Lassen and Modoc Counties. In addition, the Bureau pays the division to provide protection to nearly 2.5 million acres of public domain land throughout the state.

Water Project Fire Protection Planning

Planning efforts on two Type IV River Basin studies*, the North Coast study, and the Central Lahontan Study on the east side of the Sierra Nevada continued. These studies are in cooperation with both federal and state agencies.

Installation of land treatment measures (fire protection) on the Escondido Creek Project in San Diego County continued under Public Law 566.

The Division of Forestry reached agreement with project sponsors which will form the basis for participation on land treatment measures (fire protection) on the Upper Llagas Creek Project in Santa Clara County. The sponsors began obtaining rights-of-way so construction could begin shortly after July 1, 1972.

Fire protection measures included in the Main Street Canyon Public Law 566 project in Riverside County will be installed by the United States Forest Service on both federal and privately-owned land. The division participated in the development of fire protection needs with the Forest Service and project sponsors.

*Type IV River Basin studies are comprehensive plans developed under Section 6 of Public Law 566, for purposes of (1) flood prevention, or (2) conservation development, utilization and disposal of water, and thereby protecting the nation's land and water resources. The federal government cooperates with states and their political subdivisions, soil and water conservation districts, flood prevention and control districts, and other local public agencies in carrying out this program.

Fire protection measures included in the Carpinteria Public Law 566 project will be installed by the Forest Service on both federal and privately-owned land. The Division of Forestry and the Santa Barbara County Fire Department will assist in a technical advisory capacity, similar to the Main Street Canyon project.

Fire protection needs on numerous land projects were planned by federal, state and water development agencies, including the Corps of Engineers, Bureau of Reclamation, U. S. Department of Agriculture, Federal Water and Power Commission, State Department of Water Resources, State Water Resources Control Board, flood control districts, municipal water districts and special water districts.

Participation involved review of Division of Forestry interests and preparation of fire plans needed. Division personnel also participated with the Corps of Engineers in planning fire protection measures implemented by the Corps of Engineers at seven reservoir projects.

The Division of Forestry consummated a contract with the Bureau of Reclamation, Region 2, for the protection of Bureau lands in California.

Comprehensive Framework Studies

The Division of Forestry completed its participation in the California Region Comprehensive Framework Study. The final report contained an outline of projected water and related land resource problems expected at the bench-mark years of 1980, 2000, and 2020, and the general approaches (the framework plan) that appeared appropriate for solution of these problems.

The division's representative in the study was a member of the watershed management, minerals, and land resources technical subcommittee and chairman of the watershed management task force. His primary effort early in the year was as coordinator of a review by the four divisions of the Department of Conservation of the preliminary field draft edition of all 18 appendices and the main report. Comments were compiled and transmitted to technical subcommittee chairmen. In March the watershed management, minerals, and land resources technical subcommittee met to act upon the comments from all participating agencies applicable to the three appendices which were the responsibility of this subcommittee.

The division's participant devoted the months of March through May to the preparation of the watershed management appendix, transmitted through the Bureau of Reclamation to participating agencies and the federal Water Resources Council in Washington, D. C. in August. He also assisted to a minor degree with the land resources and use appendix.

The entire set of 18 appendices was completed by early September. The second draft of the main report was issued in October 1971 for further revision.

Wildland Fire Protection Study

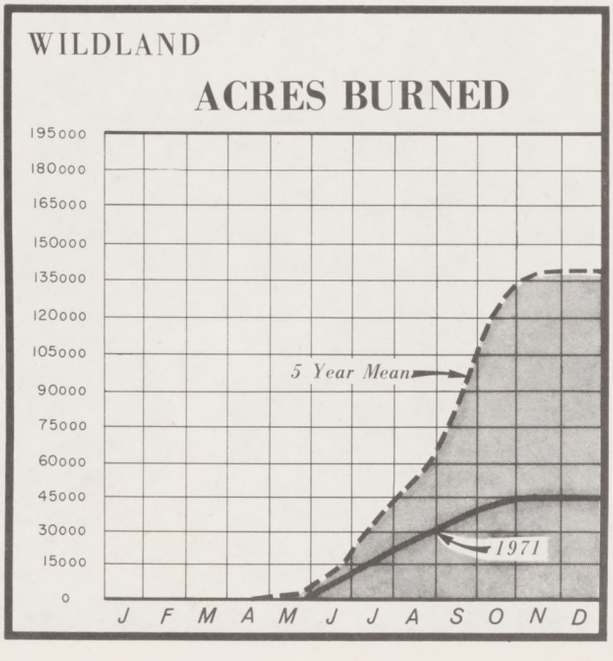
For some years the division has been concerned with the increasing structural protection problem in state responsibility areas that is resulting from urbanization of the wildlands. Historically and legally, the division has been charged with protecting watershed vegetation from damage by wildfires. The division also responds to structural fires on state responsibility areas when these fires threaten to spread to wildland vegetation. However, in recognition of a moral if not a legal obligation, the division's fire control forces have found themselves, more and more, becoming involved with protecting life and property from fire spreading in wildland vegetation. This often delays containing the perimeter spread of the wildfire itself – a reversed role from the historical and legal one.

The fire protection problem becomes more complex in an estimated 275 legal fire protection districts which include state responsibility areas within their boundaries. The districts' principal role is to provide structural protection. At the same time the division retains its legal responsibility for responding to wildfires occurring on state responsibility area forest, range and watershed lands within each district.

The State Legislature has also questioned the division's increasing involvement in structural fire protection on state responsibility areas. The Legislature's Supplementary Report of the Conference Committee in the 1971 Budget Act included the following statement:

> *"The Department of Conservation is directed to evaluate the improved efficiencies and economies which would occur should the Division of Forestry expand its structural fire protection functions and assume the structural fire protection responsibilities of local agencies now operating in state responsibility areas (exclusive of the five outside counties) and any adjacent agencies which may wish to secure rural fire protection services from the division . . . ."*

This joint concern of the Division of Forestry and the State Legislature has resulted in the division making a two-year study entitled, *A Study of the Life and Property Protection Problems on the State and Privately Owned Wildlands of California,* starting July 1, 1971. The study's first year's cost is estimated to be $66,670. Two-thirds of this amount will be paid to the Division of Forestry under contract to the Governor's Office of Planning and Research with money funded by the federal Department of Housing and Urban Development under Section 701 of the Housing Act of 1968. The other one-third will be labor and services contributed by the Division of Forestry and other elements of the Department of Conservation.



Define the wildland fire protection problem, with emphasis upon the protection of life and property.

In performing this task, the study team has already defined high fire hazardous areas and has begun a delineation of those lands statewide. The information derived will be useful for local government land use planning and zoning and will also be incorporated within the Office of Planning and Research's Land Use Policy Program. Further analysis will reveal the jobs required in fire prevention and fire control aspects of the study.

Determine what fire prevention and fire defense engineering measures are being used now and what measures are needed additionally to help meet the wildland fire problem.

In 1965 the Division of Forestry, together with other California wildland fire protection agencies, assisted the County Supervisors Association of California in formulating fire prevention measures for homes and communities located in or adjacent to the wildlands. These measures were adopted by the supervisors association as the *Fire Safety Guides for California Watersheds.* These guides include such measures as zoning, road standards, water facilities, fuelbreaks and firebreaks, clearance between vegetative growth and structures, building construction and spacing, solid waste disposal, and other related provisions.

The intent was that these guides would be adopted and enforced by the individual counties as local ordinances. One goal of the current study is to inventory the extent to which the fire safety guides have been implemented as state laws or as local ordinances and to determine the effectiveness of those laws and ordinances. Further, based upon this inventory, the study team will consider what additional fire safety guides should be adopted into state or local law.

Evaluate the some 275 fire protection districts which are entirely or partly within state responsibility areas plus additional adjacent districts.

To begin this study task, the Division of Forestry has started an intensive pilot study of one county: El Dorado. Following the analysis of data obtained from studying the fire protection districts and fire problems in El Dorado County, other counties will be selected throughout the state and studied in depth. These studies should reveal if further inventorying will be required by the division's field personnel in all counties containing state responsibility areas. These studies should be completed by May 1972, with the development of the preliminary outlines of alternative protection roles and jurisdictional roles to follow. Since the study includes state responsibility areas protected by the U.S. Forest Service, the Forest Service will also help inventory basic data within their area of direct responsibility.

Formulate and evaluate alternative ways of meeting the wildland fire protection problem in California, with emphasis upon the protection of life and property and with due consideration to cost effectiveness. Include the evaluation of alternative roles for the Division of Forestry.

This portion of the study will be initiated in May 1972 and continue to the end of the study in June 1973. The study team will look at alternative ways of providing fire protection to the state's wildlands and will recommend further considerations of what appear to be the best two or three alternatives. The recommended alternatives will include cost-benefit analyses.

Fire Prevention

The objective of the fire prevention element is to hold the occurrence of all man-caused fires on state responsibility lands at the 1965-69 annual average – 6,598 fires on these lands directly protected by the division – by means of activities that have been demonstrated as effective in preventing the ignition and initial spread of uncontrolled man-caused fires.

More specifically, the objective is to influence people – those who live, work, or play in the wildlands – to act in a fire-safe manner and to reduce or eliminate physical hazards or risks. There is no intent to prohibit the use of fire or fire risk agents or equipment. The intent is to regulate the use of fire or potential ignition sources in such a way that "uncontrolled fires," as defined in Section 4104, Public Resources Code, do not occur in excess of the above stated objective.

The goal for the 1972 fire season will be to hold the occurrence of all man-caused wildfires on state responsibility lands directly protected by the division to less than 7,461 fires. (7,461 fires is equivalent to the 1966-70 annual average of 7,106 plus five percent of 355 fires which is the projected long-term trend annual increment.)

Fire Prevention Engineering

Efforts continued to be directed towards the reduction of fuel hazards along railroad rights-of-way in the wildlands. *The Railroad Right-of-Way Hazard Reduction Guide* was completed and distributed to the field and railroads in October, 1971.

Fire retardant material was applied to ties and wood chips on a section of high occurrence track and, despite late rains, reduced incidents in the treated area approximately 80 percent. The past efforts on rights-of-way hazard reduction, brake shoe conversion, spark arrester installation, and eductor tube scrubbing should become much more apparent in the 1972 fire season after the good showing this past season.

Division employees are continually being trained to recognize railroad problems, equipment inspection, and prevention procedures.

Fire Prevention Engineer Jim Taylor addressed the national meeting of the National Fire Protection Association (NFPA) in San Francisco on the subject of railroad right-of-way clearance, locomotive improvements, and spark arresters in California.

Pacific Gas & Electric Co. has initiated the replacement of all open link fuses in the watershed area of the San Joaquin Division with the liquid-filled fuse. This should eliminate fires resulting from blowing fuses and eliminate the need for the 10-foot clearing required for fuse installations. The company is installing and testing a coated conductor in several test areas which shows promise in reducing fires from contact between the conductors and forest vegetation and trees.

The division cooperated with a Los Angeles-based manufacturer in an unsuccessful effort to perfect a new concept in design for truck spark arresters. The present production spark arresters still appear to be the best available; however, the industry is still looking for more effective and maintenance-free arresters.

Considerable interest has been developed over regulating the use of off-the-road vehicles throughout the state. Counties are adopting ordinances and other governmental agencies are developing equipment standards and regulations for use. The division is actively cooperating with agencies and interested groups for the orderly development of effective but not overly restrictive regulations.

The steady increase of equipment-use fires and fires occurring along highways and roadsides continue to concern the prevention staff. Analysis of these fires and methods of reducing their incidence has a high priority and, along with the Fire Safe Program, will be emphasized in the coming year's activities.

Information and Education

California Fire Prevention Committee held its annual meetings in Los Angeles and in San Francisco during May 1971. The southern meeting was the first for State Forester L. A. Moran in his role as official committee chairman.

The Southern Fire Prevention Award was presented to Jack Miller for the Agricultural Producers Labor Committee of Los Angeles by Moran, with the help of Smokey Bear. This group used educational metholds to drastically reduce the fires caused by farm field workers.

A special award, for many years of public service in fire prevention, was presented to W. R. (Bill) Nelson of Southern California Edison by Moran. Smokey is portrayed by Fire Captain Gary Simpson of Etiwanda Fire Station, San Bernardino Ranger Unit.

A second special award was given to Bob Hale of KNBC News who, as luncheon speaker, gave a very interesting talk. Hale is a weather reporter and cartoonist. He stresses fire prevention on his popular television show.

In keeping with breaking the traditional format six speakers were introduced by Moran during the pre-luncheon period.

First to be introduced was Andrew (Bud) Van Horn, executive secretary of Keep California Green, Inc., who described the fire prevention program of his privately supported organization–which represents most of the state outside the Redwood Region.

Loren (Bud) Good, executive vice president of the Redwood Region Conservation Council, explained the fire prevention activities of his conservation-oriented organization. The RRCC is active from Monterey County northward to Del Norte County and is privately supported.

Both Keep California Green and the Redwood Regions Conservation Council work closely with the Division of Forestry and the U. S. Forest Service in fire prevention and conservation education.

Chairman Rolland Piercy of the Southern California Watershed Fire Council explained the activities of the council. Supported by the boards of supervisors of the southern counties, the council is dedicated to promote wise use and protection of the wildland resources.

Piercy introduced Jack Berman, treasurer of the Watershed Fire Council and vice chairman of the Los Angeles Watershed Commission, who spoke of the council's public education program.

A part of this program is the speaker's bureau wherein college students are trained to give fire prevention and conservation talks to service clubs, high schools, Parent-Teacher Association, etc. Berman introduced Robert Morris of the University of California, Los Angeles, speech class who told of the public education program.

Last, Vice President Charles Coleman of Foote, Cone and Belding presented the inside story of developing the 1971 Smokey Bear national cooperative forest fire prevention campaign. The television spots, radio tapes, posters and other materials were seen and heard by the attentive audience closely held by Coleman's attractive program–which was done in the manner of an account executive selling his creations.

Countdown to Calamity, the division's 1971 feature film presentation film was described by Fire Prevention Officer Walter Bolster.

Moran concluded the meeting with a discussion of the disastrous 1970 fire season with emphasis on the great cooperation.

Chief Engineer Richard Houts of the Los Angeles County Fire Department attended his first meeting of the committee as chief–another first–and supplied the photographer for this series of photos, as the LACFD has been doing for 20 years.

The northern meeting followed the traditional format hosted by Len Quever, research supervisor, and the Pacific Telephone Company in San Francisco. State Forester Moran was introduced as the new chairman by Quever and he opened the meeting by reviewing the 1970 fire season.

Three speakers, Van Horn, Good, and Coleman repeated for the northern members. Good called upon Fire Prevention Officer Art Jaseau of the Central Coast District for comments on his poster program in the Monterey area.

Huey Sykes, distribution engineer for the Pacific Gas and Electric Co., explained his company's fire precaution procedures in hazardous fire areas that involve the Wildland Fire Danger Rating System of the U. S. Forest Service and Division of Forestry. Pacific Gas and Electric Co. checks daily with the Sacramento statewide dispatcher and invokes no-test and standby procedures wherever very high and extreme fire danger levels are reached in each rating area.

Fire Prevention Engineer Jim Taylor spoke for E. L. McCann of Western Pacific Railroad. Taylor told of McCann's help in reducing railroad caused fires by right-of-way clearing, exhaust stack clearing, use of higher grade fuels, and dynamic braking. McCann, a former CFPC award recipient, has been the fire prevention coordinator for all railroads on behalf of the committee.

Moran presented the northern annual fire prevention plaque to Franklin C. McPeak who accepted on behalf of McClatchy Enterprises. Through their multi-media outlets of newspapers, radio, and television, McClatchy has been an ardent supporter of the fire prevention and conservation program of the Division of Forestry, U. S. Forest Service, and city, county, and district fire departments.

A special award for Sunset magazine for its frequent fire prevention and fire-safe articles and use of Smokey Bear ads was presented to Larry Smith of Sunset.

Newton Steward, vice president of the California-Oregon Radio Company, Eureka (KIEM-TV & KRED Radio), discussed legislation which raised the reward for information leading to the arrest and conviction of arsonists from $100 to $500. The bill did pass, due in large part, to Steward's efforts over a year and a half period.

The Orangevale (Sacramento County) Junior Women's Club was presented the division's annual award for the most effective fire prevention work with kindergarten through sixth grade students. The presentation was made by Deputy Director A. Alan Hill of the Department of Conservation at the annual statewide meeting of the Junior Women's Club held in 1971 in San Mateo. Hill was accompanied by Ranger Ross Dunwoody.

California Fire Prevention Committee member Joe DeLucchi again sponsored Smokey Bear Day at the San Francisco Giants, Los Angeles Dodgers, California Angels, and San Diego Padres baseball parks. At San Francisco Deputy Director Hill participated with DeLucchi and Smokey in presenting the "Fireman of the Year" award to Giants' best relief pitcher Jerry Johnson. Also participating in these series of programs were Mike Schori, Dick Ernest, Rex Griggs, Art Jaseau, Ross Dunwoody, John Morrow, Wally Trotter, Bill Crookshanks and Frank Lewis.

Also due to the efforts of hard working DeLucchi, Smokey Bear appeared at the Ontario 500 and Riverside Grand Prix raceways to give his pitch for forest fire prevention. Smokey also traveled to Arizona to help dedicate the little English village of Lake Havasu City and walk across London Bridge.

Film Wins Award

The division's annual fire prevention film, *Countdown to Calamity* won the Golden Cindy Award, in government category, from the International Film Producers of America, Inc.

Department of Water Resources' Ken Chaney was the writer, director, photographer and film author. Walt Bolster of the Division of Forestry was the producer and Clint Phillips and Joe Griggs were technical advisors.

Certificates of Cindy Awards were given by IFPA to the four above; Mike Boyd, KCRA-TV Sacramento, narrator, Vince Arrent, Department of Water Resources, soundman, and all TV cameramen in California.

Last year the division employees showed film library programs over 3,000 times to about 300,000 people. This does not count the 10 known times that Countdown to Calamity was shown on various television stations. Fire Prevention Officers Dick Ernest, Art Jaseau, Phil Lowell, and Walt Bolster appeared on a 30-minute talk show midday at KMST-TV, Monterey. The 16mm color film of this program is in the division's film library catalog.

A television news team from the British Broadcasting Corporation visited the Calaveras Ecology Center and interviewed Center Director Eugene Peterson. The BBC, escorted by Fire Prevention Officer Ray Higgins, was the fourth network to do a story on the corps in 1971.

In March, the San Francisco regional office of the U. S. Forest Service hosted the Cooperative Forest Fire Prevention Committee for a two-day Smokey Bear planning meeting. The committee consisted of Hank DeBruin, chief, Division of Information & Education, USFS; Merle Lowden, chief, Division of Fire Control, USFS: Willard Tikkala, chief, Division of State & Private Forestry, USFS: all of Washington, D.C. and State Foresters Sam Cobb, Pennsylvania; Jack Gillette, Idaho; Roy Bell, New Mexico; and John Bethea, Florida.

The advisor for the committee, CFFP's program director Mal Hardy (USFS, Washington Office), was also present. Charley Coleman of Foote-Cone-Belding, the volunteer ad agency, presented the 1972 proposed Smokey Bear Campaign. Grant Morse, Don Porter and Gerald Gause all of the USFS San Francisco, and Deputy State Forester Howard Moore, Burns and Ernest also participated. State Forester Moran attended a portion of the meeting.

A two-day tour of Contra Costa, Marin and Sonoma counties was hosted by the North Coast District office, Sonoma Ranger Unit and Black Mountain Conservation Camp led by FPO Ed Karman, FPO John Hess, Ranger Ed Poe, and Fire Crew Foreman John Bunn. The group saw the Oakland fire, Marin County Civic Center, North Coast District office, Sonoma Ranger Unit headquarters, Winton Forest Fire Station, Armstrong Grove, Black Mountain Conservation Camp, Russian River, Bodega and Tamales Bay, Point Reyes National Seashore, and Audobons Great Blue Heron Nesting Area.

"Fire Watch Day" sponsored by the El Dorado County fire services was planned by Ranger Frank Holbrook of the Amador-El Dorado Ranger Unit and Dick Serino of the El Dorado National Forest.

A Miss Fire Watch contest found Jerri Petrik chosen for the title in the first of this planned annual event. Miss Fire Watch was introduced to Deputy State Forester Moore who presented her with a fire prevention plaque. Mrs. Habner Moser, public relations officer for the Michigan California Lumber Company, Camino, originated the observance of this program that spotlighted forest fire prevention in a variety of special activities and programs in 1971.

The Goodyear blimp *Columbia* toured California in the summer of 1971 with the message "prevent forest fires" showing brightly in lights on its sides. In Santa Rosa Ranger Frank Crossfield sent Smokey Bear to act as co-pilot.

The Pre-School and Elementary Fire Prevention and Conservation Education Program Kit has been selling briskly at $6 plus tax to schools throughout California. A new ad in the form of a flier was sent to all schools. A refill kit was designed by Dick Ernest, Rex Griggs and Jerry Brown that will serve 150 more students in the kindergarten, first and second grade level. The refill kit is free after the original kit has been purchased.

The late Ranger Elmer Osterman is below shown with Mrs. Osterman as he received the Silver Smokey award from former U. S. Secretary of Agriculture Clifford Hardin. Osterman's skills and dedication as a fire prevention official in southern California were cited.

FPO Ernest, Assistant Deputy State Forester Bob Burns, Keep California Green Secretary Madely Helton, and Senior Delineator Jerry Brown were the judges for the annual Keep California Green, Inc. fire prevention poster contest.

Fire Prevention Training

The state Commission on Peace Officer Standards and Training (P.O.S.T.) certified that the Division of Forestry's six-week *Basic Peace Officer Training Course* met the commission's requirements for specialized basic law enforcement training. The basic course is also accredited at San Joaquin Delta College. Students who take the course at the division academy earn four semester units of college credit for each two-week increment of the six-week basic course.

Thirty-eight students completed the six-week basic course at the academy, including one employee of the U. S. Bureau of Land Management. Four employees of the North Carolina State Forest Service attended the final two weeks of the course to assist them in developing a course in their home state.

Thirty-nine students completed 160 hours of the basic course, including the fire chief of the East Bay Regional Parks District, one employee of the U. S. Bureau of Land Management and one member of the Orange County Fire Department.

Another 143 students completed the first 80 hours of the basic course. This class included five employees of BLM, two employees of the U. S. Forest Service, six employees of the East Bay Municipal Utility District and two members of Orange County Fire Department.

In addition, 62 students completed the first 80 hours of the basic course at Oak Glen, San Bernardino County, including the chief and one inspector from Beaumont Fire Department, one BLM employee and one member of the Orange County Fire Department.

Thirty-nine students completed one week of advanced peace officer training.

Twenty-one students completed a one-week basic fire prevention education course. Eighteen completed a two-day fire information officer course.

Approximately 3,196 man days of fire prevention training were completed during the year.

The firearms training range was completed, eliminating the previous need to move classes from the Division of Forestry Fire Academy at Ione to the Stockton Police Department Training Range for the firearms portion of the basic peace officer training course.

Two additional one-week fire prevention training courses have been developed covering fire prevention-information and fire prevention-engineering. Pilot courses are scheduled for fall, 1972.

A one-week course of training for fire prevention program administrators and line administrators whose responsibility includes fire prevention program administration has been developed and is also scheduled for fall, 1972.

Evaluation of T.V. Spots – A PSW research paper reporting the results of the "threat" theme films has been published and distributed.

The new set of sixty-second television films, which were designed to reach the high fire risk segment of the youth-young adult population, were shown to high school youths in Butte County in the fall of 1970. The experimental variable in these films is the character of the narrator. One film uses Smokey Bear in that position, one a forest ranger, and the third uses a representative of the age group of interest. None of the three narrators proved to be more effective than any of the others in inducing change in the viewers. Attitude changes were slight in all cases, but there were very significant knowledge gains by those viewing any one of the three films when compared to those in the control group who saw only an unrelated film. The films demonstrate the proper way to build and put out an open campfire and how to smoke safely while in the woods.

The above study involved captive audiences. These TV films were retested this summer by exposing them on commercial channels in several northern California communities to see if the same results are attained when they are viewed as part of a normal pattern of TV viewing. Approximately 125 interviews will be conducted in each community prior to and following a one-week period during which one of the TV spots will be shown several times daily. A report on this has not yet been completed.

Child-Caused Fires – The program used in the Riverside Headstart classes, and more recently in kindergarten and first grade classes in the North Coast District, has been modified on the basis of the evaluation and observation findings and has been produced by the division for sale at cost to interested schools, etc. U. S. Forest Service Region 5 has purchased 1,000 packets for distribution to schools in or near national forests in the region. Experience in its use will continue to be monitored in the interest of future modifications. A somewhat condensed version of the original evaluation report is being prepared for publication.

To take advantage of the previous successful research projects in conservation and fire prevention education for use in a regular classroom situation and teaching of such concepts by television, an instructor at CSU-Chico has been exploring this past year feasibility of developing a series of individualized instructional lessons to complement the materials developed earlier. He is prepared to proceed with building and testing these individualized materials during the coming year.

The possibility of effectively studying how "normal" children learn to cope with or avoid fire dangerous situations has been discussed with child development specialists at University of California, Berkeley. It appears feasible to develop situations in which children at the Child Start Center can be observed in simulated fire-related play activity. The behavior observed in such situations will be related to the childrearing practices of the parents – the latter to be determined by interviews with the parents. Implementation of this study will be delayed until fiscal 1973, as the principal investigator will be away for most of the year.

Fire Law Administration

Actions of the Legislature and State Court of Appeals for the First Appellate District had significant effect on the fire laws.

The reward for information leading to the arrest and conviction of arsonists was increased from $100 to $500 (Section 4417 Public Resources Code). Amendments of the statute also made the reward applicable to attempted arson and commitments to state institutions as well as state prisons for the purpose of paying a reward.

Fire tool requirements required at log landings and on industrial operations were modified in the light of changing equipment technology coupled with improved communications, road systems and speed of transport (Repeal of Section 4443 and amendment of Section 4428 Public Resources Code).

Fire prevention provisions of the Forest Practice Rules were voided along with other rules adopted under the Forest Practice Act when the Court of Appeals decided in the Bayside Lumber Company case that such rules were unconstitutional.

Provisional Handbook 6210, *Forest Practice Administration - Southern Area Redwood Forest District* was completed and placed into field use in the Central Coast District on July 1. The procedures set forth in the handbook had been developed during the prior two years to materially improve enforcement of the Forest Practice Act. Further development of enforcement procedures was suspended following the Bayside Decision including development of an automated reporting analysis system.

Fire prevention staff at the district level was reorganized to establish organizational relationships initially planned in 1955-56. No additional positions were established at district staff level; however, one fire prevention officer IV position was reclassified to state forest ranger III and given a working title of district fire prevention program supervisor. Incumbents in these positions now are in charge of the total fire prevention program in a district and report directly to the district deputy state forester.

One fire prevention officer V position, assistant law enforcement coordinator for civil enforcement, at division headquarters was abolished. During 1972 significant changes are proposed in the civil program. Selected division officers will be authorized to initiate small claims actions for recovery of fire suppression costs. District deputies will be authorized to initiate letters of demand for fire suppression costs in amounts up to $5,000 and negotiate settlement of such claims subject to final approval of the director of conservation.

Louis Gerlinger, 28-year veteran with the division and chief criminal investigator retired March 1, 1972. Since 1965 Gerlinger filled a significant role as a principal instructor in the division's basic peace officer training program.

Incendiarism was the major single fire cause reported during the year (1,003 fires in state responsibility lands directly protected by the division). Members of the division's arson investigation unit plus assistance from other peace officers were assigned to fire investigation teams working major incendiary cases in Riverside, Ventura, Placer, Butte and San Diego Counties.

New optical-electronic surveillance equipment was used for the first time. The equipment materially increased the efficiency of nighttime surveillance operations. Expanded operational use of this equipment is indicated.

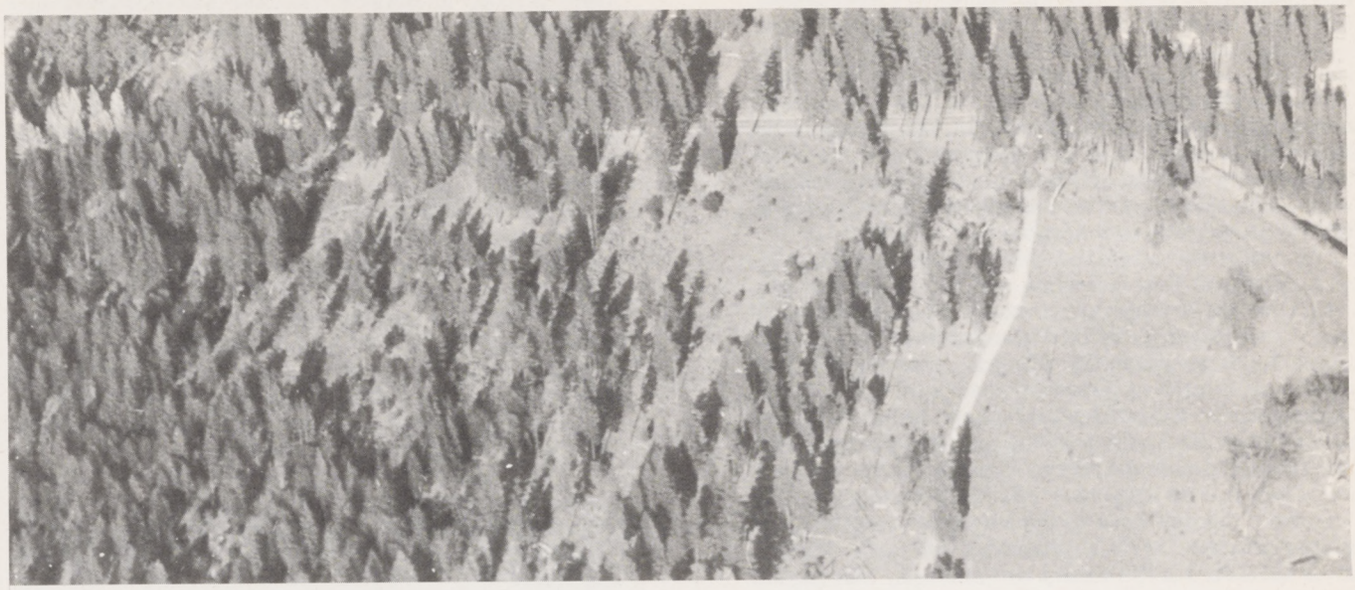
Arsonists Apprehended

Prosecution of arsonists apprehended as a result of team investigations resulted in convictions on multiple felony counts in Contra Costa and Riverside Counties.

During the year, 380 cases were tried in the courts. Conviction rate on adult misdemeanor cases was 90 percent and the felony conviction rate was 62.5 percent. Seventy-six (20 percent) of the cases tried involved juveniles. In one-third of these cases some type of remedial action other than remanding the juvenile to the custody of his parents was involved. (Made a ward of the court, ten; remanded to California Youth Authority, nine; guardian appointed, two; and reparation of damages and suppression costs ordered, five.)

The California campfire permit made its debut on the recreation and fire prevention scene on the Fourth of July weekend, 1971, after a three-year gestation period. For the first time the Forest Service, Division of Forestry, and Bureau of Land Management jointly adopted a single campfire permit form with one set of permit terms applicable uniformly on National Forest, State, and Public Domain Lands. This change provided greater convenience to the public in complying with campfire permit requirements and provided a single standard of care to be used in fire prevention education programs and publications on campfire safety.

Forest, Range, and Watershed Management



Forest Practice Act

Continued progress was made in 1971 in obtaining correction of Forest Practice Rule violations and prompt rule compliance. A procedure whereby operators and timber owners incurring forest practice violations were sent a preliminary notice of state forester's intent to take corrective action was developed into smooth business practice. This avoided lengthy and expensive procedures for hearings, and achieved substantially more prompt correction.

One of the key features of the Southern Redwood Area Rules fully operational in 1971 was the requirement a plan be filed with the notice of timber operations in advance, showing location of cutting area, property boundaries, road locations, location of streams, and location and nature of drainage structures for roads. This provision has functioned smoothly and efficiently, and has been responsible for significantly preventing violations in the Southern Area of the Redwood Forest District, especially in regard to erosion control in and near streams.

The Forest Practice Act was amended in 1971 by the State Legislature. Major changes are briefly as follows: Timber operator permit fees were increased to $50 for an original permit, $25 for a renewal permit, and $35 for late renewals.

The permit period was changed to the calendar year. Permit renewals must be applied for in December instead of January. A non-renewable temporary timber operator's permit can be obtained for a $15 fee. Such temporary permits may be issued for any consecutive three-month period for harvesting minor forest products only.

Failure of an operator to notify the state forester of timber operations was made a misdemeanor, and allowable maximum costs recoverable by the state forester for correction of forest practice violations was raised from $40 for each acre in violation to $100 for each acre in the logged area plus an administrative charge.

The Board of Forestry was authorized to revoke an alternate plan or forest management plan if the approved plan was not being complied with. Revocation of timberland conversion permits was authorized.

Provision was made for a $100 to $500 fine for violating forest practice rules in converting timberland to a non-timber growing use before first obtaining a timberland conversion permit from the state forester.

The Board of Forestry was also authorized to propose and order review for adopting new rule amendments to existing rules of a forest district. Napa County was added to those counties empowered to adopt rules and regulations stricter than those of the forest district.

Governor Reagan appointed Conrad L. Cox of Ukiah and Norman Aye of Santa Rosa as public members to the Redwood Forest Practice Committee; William Beaty of Redding as private timber owner, William H. Holmes of Strawberry Valley as private timber owner-operator, Robert E. Eiler, Jr. of Gazelle and John B. Rice of Alturas as public members to the North Sierra Forest Practice Committee; David Rodrigues of Roseville and Willis Kimbel of Ontario as public members to the South Sierra Forest Practice Committee; and Floyd A. Ross, Jr. of Ukiah, and David Dillon of Arcata as public members to the Coast Range Pine and Fir Forest Practice Committee. James Van Loben Sels representing private timber ownership resigned from the Coast Range Pine and Fir Committee.

The public members were appointed in July 1971 as provided in the 1970 amendment to the Act specifying two public members on each Forest Practice Committee. The other appointments were made to fill vacancies.

Santa Cruz County In December adopted a county ordinance to regulate logging. This ordinance incorporated most of the requirements of the rules for the Southern Area of the Redwood District, and included some additional requirements.

The state forester issued 279 new timber operator permits in 1971 and renewed 901 permits, collecting $13,960 in license fees. There were 13 more timber

operators in 1971 than in 1970. Some 1,167 operators reported cutting 4.57 billion board feet in 1970, about 43 million board feet less than in 1969. Some 990 operators in 1970 cut primarily 4.50 billion board feet of saw and veneer logs, and 177 others cut Christmas trees, greens, and 15.31 million equivalent board feet of miscellaneous forest products, including split products, fuelwood and pulp logs.

In 1971 the division made 1,979 forest practice inspections statewide, and found that 95 percent of all rules inspected for were in compliance, compared with 94 percent in 1970. Overall compliance with Rules was 97 percent in the Redwood District, 96 percent in North Sierra Pine District and South Sierra Pine District, and 92 percent in the Coast Range Pine and Fir District.

Inspectors observed 667 violations of rules as compared with 860 in 1970. Rules most often found in violation in decreasing order were snag disposal, fire plan filing, erosion control, fire rule posting, and slash treatment. Snag disposal has been the leading violation for many years.

As in previous years, the division carried out most law enforcement administratively, sending 447 notices of violation of forest practice rules. Also, division personnel sent many letters and held follow-up meetings with timber operators and owners to improve compliance. Twenty-three forest practice cases were concluded and 13 were in various stages of corrective action or legal development when the appellate court decision became effective, making parts of the Forest Practice Act unconstitutional, stopping any further rule enforcement.

The timberland conversion regulations as revised in 1968 continued to function well. During 1971 the state forester issued 27 timberland conversion certificates for devoting 16,179 acres to non-timber growing use, compared with 33 certificates for 20,568 acres in 1970.

Selective logging in young growth redwood-Douglas-fir stand, Pacific Lumber Company lands, Humboldt County.

Forest Practice Act Ruled Unconstitutional

In an historic landmark case, the State Appeals Court for the First Appellate District in San Francisco, in ruling in the case of *Bayside Timber Co., Inc. v County of San Mateo,* found certain portions of California's Forest Practice Act unconstitutional. The decision took effect December 15, 1971, after the State Supreme Court declined to hear the case.

Thus after 25 years of steadily evolving forest regulation all existing district forest practice rules become null and void and the Division of Forestry was powerless to enforce most of the regulations. Nevertheless, many timber owner-operators pledged continued voluntary forest practice rule compliance.

Governor Reagan asked the State Legislature to enact temporary new laws so the division would have an enforcement tool. The legislative process, both for interim laws and long-range provisions, was underway early in 1972.

The court decision did not invalidate the entire Forest Practice Act. It did, according to Attorney General Evelle J. Younger, do this: *Generally speaking it invalidates the forest practice rules, forest management plans and alternate plans heretofore adopted under the act as well as the authority to adopt or amend such rules and plans under the procedures and standards contained in the act.*

State Forests

The division celebrated Mountain Home State Forest's 25th anniversary under state ownership in August 1971 by conducting a tour of the forest to exhibit accomplishments of the past 25 years. The State Board of Forestry and many persons participated.

Some 977 acres of Jackson State Forest were traded to Boise Cascade Corp. for 658 acres of prime beachland along the picturesque Mendocino Coast. The beach areas will be administered by the California Department of Parks and Recreation.

Negotiations which started in 1970 to develop a satisfactory long-term lease for the Mendocino Woodlands Recreation Area on Jackson State Forest were completed in 1971. A 15-year lease agreement was signed by the state and the Mendocino Woodlands Recreation Association that will provide for the continued use of the recreational area and facilities for organized group recreation.

A cooperative experiment between the state and the Pacific Southwest Forest and Range Experiment Station for a thinning study in 35-year-old redwood timber on Jackson State Forest was initiated. The study will provide yield and growth data from three levels of thinnings and give some insight as to optimum growth in such timber stands.

Caspar Creek Watershed Study progressed into a third stage with the selective logging of one third of the watershed.

During 1971 four new experiments and demonstration projects were approved. A total of 22 projects were worked on and two reports were published. *State Forest Note No. 46* reports on the roadside stabilization work that has been in progress since 1964. This treatment, developed through experimental work on Jackson State Forest, is now operational on all timber sales on that forest. The results of this study are of special interest to timberland owners and managers seeking ways to reduce erosion resulting from logging operations and road construction projects. Young growth volume tables for Sierra redwood were published in *Hilgardia,* a journal of agricultural science published by the California Agricultural Experiment Station. The information for these first young growth volume tables for Sierra redwood came from work done on Mountain Home State Forest.

Forest Pest Control

Forest pests (insects, animal and disease) account for losses over one billion board feet per year. This is more than four times the lumber losses from fire though not as spectacular. The division has the responsibility to assist in the protection of California timberland from forest pests. To meet this responsibility, the division has an intensive cooperative program with private landowners and the federal government about detection, appraisal and control of forest pest damage.

Bark beetles cause the greatest damage of the forest pests. During 1971 they were at a low level in northern California. However, due to the large fires of 1970, southern California experienced increased losses. Seven bark beetle direct control projects were conducted treating 3,503 infested trees. Removal of infested trees by logging was recommended for several other infestations. This is usually accomplished along with an owner's logging plans.

The Doulgas-fir tussock moth has been a periodic problem in California since 1906. The moth caused severe and sometimes extensive defoliation of white fir timber in the Cascade and Sierra Nevada Ranges. It has proven to be a big problem in white fir areas managed for Christmas trees. It has caused mortality in heavily infested stands.

In 1971 the moth defoliated several thousand acres of white fir timber in the Mother Lode counties in the Sierra. Cooperative surveys with the Division of Forestry, U. S. Forest Service, University of California, and forest landowners have shown these infestations to be going downhill. However, in Calaveras and Tuolumne Counties several areas could find the moth active in 1972.

Tussock moth damage on white fir.

As DDT is the only insecticide proven to be effective against the Douglas-fir tussock moth, a field test to control the insect with a virus was attempted. The test was a failure. Researchers think the virus may have been deactivated by ultra-violet rays, when the material left the spray nozzles. This and several other problems need to be resolved before additional field trials are made.

The division cooperated in another large scale field trial to find an alternate method to insecticides to control bark beetles. This was the use of artificial sex attractants to both sample and control western pine beetle populations. This project will be continued in 1972. The systems currently being tested are not feasible for use by the division.

Forest diseases were reported more frequently this year than ever before. *Dermea pseudotsuga,* a tree killing pathogen first detected in a nursery near the Oregon border, has been found as far south as Mendocino County. The disease is killing thousands of young Douglas-fir trees in plantations and natural stands in Mendocino, Humboldt, Trinity and Siskiyou Counties. Little is known about this disease.

Surveys during the past year show the white pine blister rust to be more widespread in the southern Sierra than originally supposed. For the first time in forty years, no ribes eradication work was done in California.

A special blister rust control project on Mountain Home State Forest, Tulare County, involved pruning 1,958 non-infected healthy crop trees and destroying 559 infected sugar pine trees on 700 acres.

Brush Range Improvement Activity

The Brush Range Improvement Program entails the administration of burning practices for range improvement of brush-covered land, advisory services to landowners, and standby fire protection in cooperation with private landowners desiring to use fire as a means of converting brush-covered lands to suitable forage land.

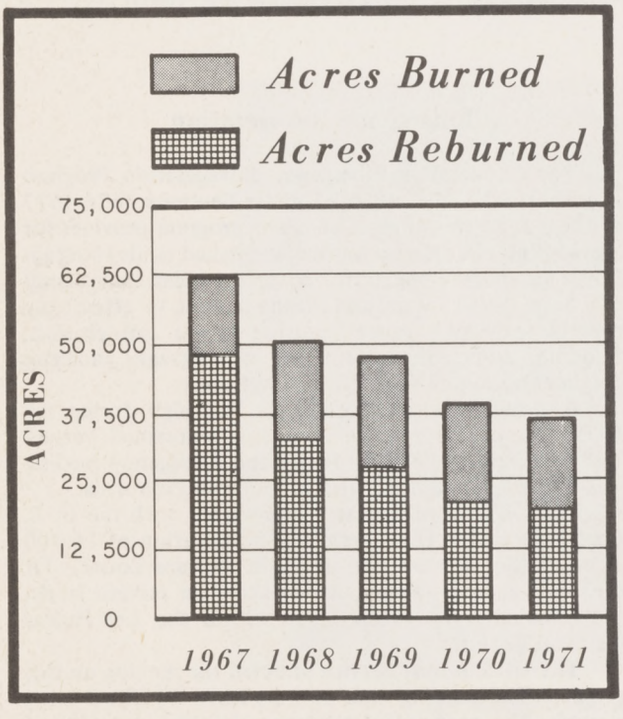
Prime objectives of the program are to increase forage production on the lower quality brush-covered range land, to promote fire prevention and protection measures, and to stimulate watershed protection and good conservation and environmental practices.

The program provides for advisory services to applicants for controlled burning permits as to precautions to be taken to prevent damage to adjacent landowners due to such burning, and to provide standby fire protection to the extent fire crews and fire equipment are available.

Activity in controlled burning dropped again in 1971 to 37,246 acres, continuing the gradual trend in acres burned. The number of separate burns was reduced to 107; however, the total area burned decreased only by about 4 percent below that for 1970.

Since inception of the state's permit program in 1945, about 2.5 million acres of California's brush-covered lands have been control-burned to reduce the brush. This includes 0.75 million acres reburned to maintain a range forage cover.

Reburning reached a peak during 1967 with 49,315 acres – 76 percent of the total acreage burned under permits – being treated. To a much greater extent, the use of fire is becoming more of just one phase of the land clearing process rather than the total remedy in converting unproductive brush-covered land to productive rangeland.



The burning activity in brush range improvement dipped slightly again in 1971. A little more than 53 percent of the total acres treated was reburned to maintain a good forage cover.

A well prepared fire line insured a safe and effective 1300 acre control-burn on the Walter Burnet Ranch in Los Gatos Canyon, western Fresno County.

Although most burning is conducted for improvement of livestock ranges, 22 of the 107 permits were issued for game management only, covering approximately 2,004 acres. In addition, 18 controlled burns were conducted as dual-purpose burns for both domestic livestock grazing and wildlife habitat improvement during 1971.

Again regular division fire control crews were available for standby in the event a fire escaped during the burning of 24,680 acres on 20 separate burning projects during the 1971 season.

Range and watershed specialists provided assistance to private landowners through individual contacts, group demonstrations, and the distribution of printed material regarding land treatment practices prior to and after, or combined with burning. These specialists answered over 450 requests giving advice and assistance to landowners about brush range and hazard reduction practices – chemical sprout control, mechanical preparation, and seeding – used in combination with burning. In addition, these specialists conducted a program of brush hazard reduction on Division of Forestry fuelbreaks through the use of herbicides.

The division's cooperative range improvement field study program is conducted for the purpose of testing methods and demonstrating practices. Findings from these studies are published from time to time in a series of division publications entitled *Range Improvement Studies.* The range improvement field studies are authorized under Sections 4771-4776 and 4781-4788, Public Resources Code, and are available for public distribution.

The division currently has three active projects and two pending studies planned. In addition, these specialists are putting much attention to the development of the "Ball and Chain" for crushing standing brush to prepare it for follow-up burning.

Forest Advisory Services

California needs for forest products are such that its timberlands should be managed and protected for a high level of production. This should be accomplished without harming the environment. Small forest property ownership embraces nearly 3.5 million acres and involves over 30,000 owners. Professional skills to manage their lands to fulfill the needs of California are not usually possessed by these owners.

The division has 10 forest advisors located strategically throughout the state to advise these owners about forest and fire laws, preventing soil erosion, protecting aesthetic values and environmental problems. They also confer with landowners on the ground about forest protection, reforestation, harvesting and marketing of forest products, recreational development and other management activities.

Mor Bark post peeler owned by Larranaga.

During 1972 the division received 3,400 requests for assistance. Management advice was given to 2,661 landowners comprising 338,817 acres. The total value of the forest products produced by the landowners was $1,415,408. This is a slight decrease in value in comparison with 1970.

Smog, a problem of California, continued to damage our forest trees. This problem has increased the activities of the forest advisors in many of our urban areas providing advice about tree damage and recreational development. The continued fragmentation of our wildland into smaller tracts also have increased the workload of the forest advisor.

The Rural Environmental Assistance Program has placed its highest priority on those practices that have a long lasting environmental improvement. The forestry practices are in the highest priority group. Forest advisors provide technical advice and guidance for these practices.

Continuing an effort begun in October 1970, the division provided a professional forester as consultant to the Tahoe Regional Planning Agency and other governmental entities within the Lake Tahoe Basin. The principal activity during 1971 was working with technical study committees in preparing technical reports and proposed regional ordinances. Liaison was maintained with private and public agencies, and with educators working on the Lake Tahoe Regional Plan.

In July the division began a two-year study under contract from the State Water Resources Control Board. It involves an inventory of soil and vegetation conditions of the state, and an assessment of the impact of man's activities in the foothill and mountain areas upon water yields and water quality. Most of the soil and vegetation data have been collected, as well as information on grazing, fire, and timber harvesting operations. These data are being analyzed while part of the study team continues data collection on urbanization activities and waste problems in wood products processing. Results of the study will be used in developing over-all water quality control plans for each of the major watershed basins of the state. After the required reports are completed, the study team will serve as consultants to assist planning groups in interpretation and applications of the data and basic principles of watershed management.

The Resource Conservation and Development Project in Modoc County has been enlarged to include Lassen County. The division provides technical advice. Efforts are continuing with some success to develop markets for the use of juniper for lumber, pencil stock and posts, and barbecue chips from mountain mahogany. There has been increased interest in fuel wood production to provide jobs for the unemployed in hard-pressed areas.

The division produced the sixth in a series of markets for woodland products in California. This report provides recent information about prices, names and location of the many buyers of the various products available from the woodlands of the state. It was produced in cooperation with the U. S. Forest Service and the University of California.

The California Division of Forestry, Nevada Division of Forestry, the University of Nevada, Reno, and U. S. Forest Service produced a report about the markets for fence posts in Nevada and eastern California. The report evaluates the prospects for development of an industry specializing in wooden fence posts and related products.

Emergency Revegetation

The Cooperative Emergency Revegetation Program is authorized and conducted under Sections 4675-4677 of the Public Resources Code. The program provides for the seeding of critically burned watershed lands to establish a temporary vegetative cover on areas that would not be restored by natural means in time to effectively prevent excessive runoff causing severe soil erosion, flooding, and sedimentation of downstream facilities detrimental to public health and welfare.

Although wildfire occurrence was high during the 1971 season, the acreage of critical watershed burned was well below the 1970 figure and emergency seeding was limited to one major fire in southern California.

The Division of Forestry cooperated with the U. S. Forest Service in the emergency revegetation of 16,000 acres of the Romero fire in Santa Barbara County. Of the total acreage seeded, 8,740 acres on private lands, the remainder on public lands within the Los Padres National Forest.

The U. S. Forest Service directed the seeding on this project. The seeding was accomplished by fixed wing aircraft. The seed was a mixture using seven pounds of wimmera ryegrass (*Lolium subulatum*) and one pound of Blando brome per acre on the National Forest land and

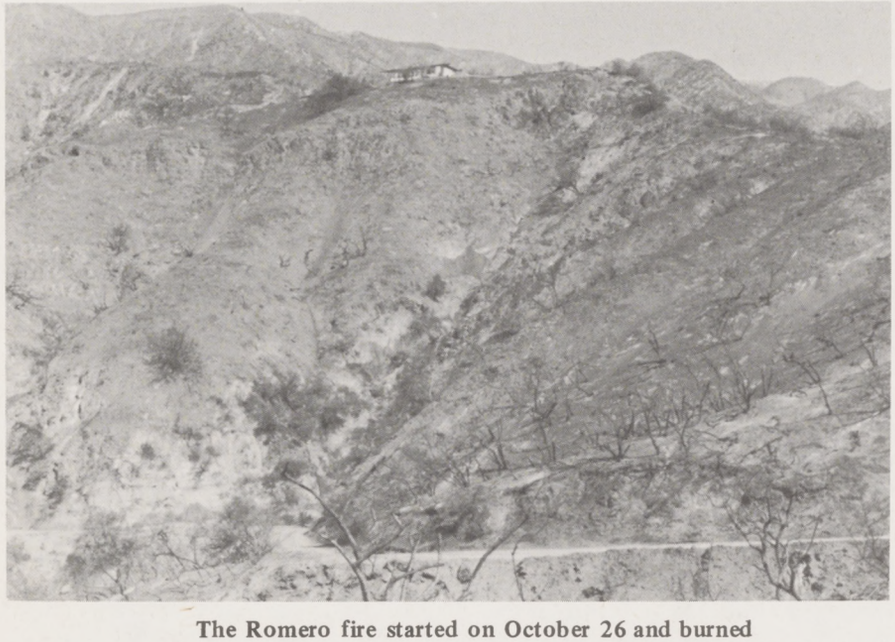
eight pounds of wimmera ryegrass per acre on the private land. Evaluation of the results of this seeding will continue for three years as a part of the emergency revegetation project.

Since 1956, approximately 564,624 acres of private and state burned watershed lands have been seeded to secure the exposed soil against movement under heavy winter rains.

Year	Number of Projects	Acreage of private and state lands seeded
1956	3	36,716
1957	7	7,818
1958	8	26,733
1959	7	3,421
1960	12	16,530
1961	9	35,565
1962	9	9,892
1963	1	1,632
1964	9	62,724
1965	4	13,120
1966	3	3,589
1967	11	92,951
1968	8	7,493
1969	5	19,087
1970	25	218,614
1971	1	8,740
	122	564,624

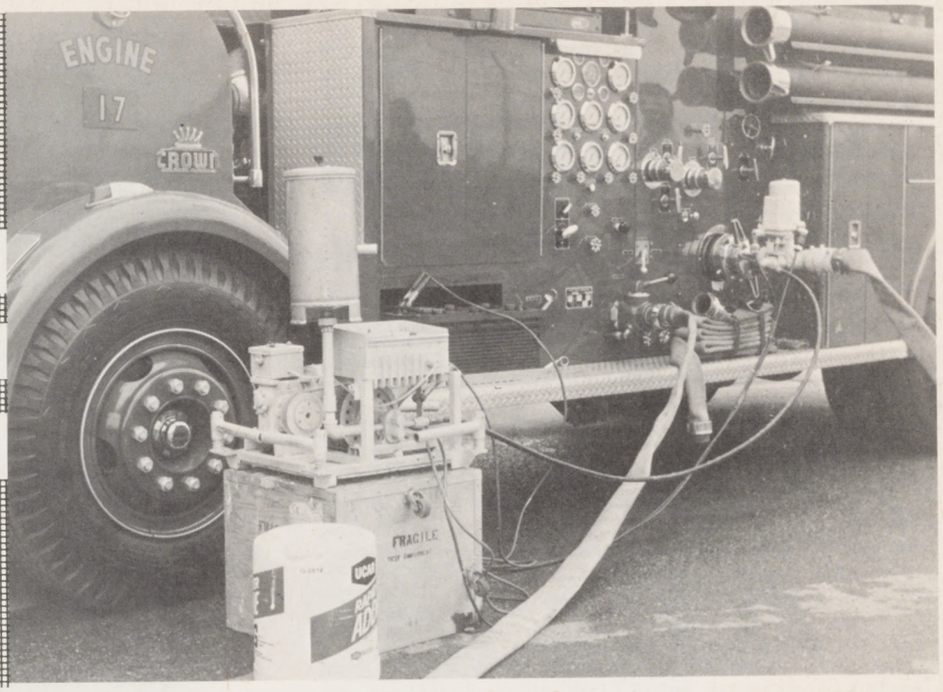
Summary of number of emergency revegetation projects and acreage seeded, 1956-1971.

This is an example of what the Western Pine Beetle can do to a Ponderosa Pine.



The Romero fire started on October 26 and burned 16,100 acres of primary watershed land in Santa Barbara County before being controlled on October 31. The extremely steep and rough terrain caused this fire to be very difficult to control.

Research and Development



Fire Prevention Research

With the exception of the coded tagging project, all fire prevention research projects are on a cooperative basis with the U. S. Forest Service and conducted by the Pacific Southwest Forest and Range Experiment Station with Assistant Director Carl Wilson supervising the overall program. Of specific concern is Dr. William Folkman, who is the project leader on the sociological studies and his assistant, Gene Bernardi.

To study, describe, and understand the analytically separable but interrelated factors responsible for man-caused fires in the arid west so as to reduce the incidence of such fires by using this knowledge to develop and evaluate fire prevention techniques and programs; to assist forest fire agencies in developing and testing pilot-scale prevention systems; and to provide technical data and assistance to the law enforcement services of the fire control agencies.

Within the context of existing and anticipated resources and capabilities, high priority is given to two problems: (1) identifying high fire risk forest-using publics, and (2) developing principles for reducing fire risk behavior of forest-using publics.

BUCO – The resurvey of Butte County residents, which is part of the evaluation of the BUCO project, was conducted during October and November 1970. A corps of interviewers from the county was recruited and trained for collection of the data. The sample interviewed was representative of the resident population of the county who were 14 years of age or older. The interviewers completed 670 personal interviews with these representatives of the local residents.

The respondents in 1970 were more inclined to feel that the fire control laws were not strict enough than did those in the 1964 survey (49 percent so feeling in 1970 as opposed to 40 percent in 1964). They, also, were more apt to feel that *enforcement* of the laws was not strict enough (49 percent versus 38 percent).

Fifty-three percent felt that the Division of Forestry does a "satisfactory job," and 41 percent felt that it does an "excellent job". Respondents also felt that the division had been doing a "better" job (42 percent) or a "much better" job (13 percent) during the past three to four years. The remainder saw no difference, or had no opinion. (These questions were not asked in the 1964 survey.)

Forty percent of the respondents reported having had some contact with the division during the year. Of these, 47 percent reported their contacts to be "satisfactory" and 37 percent reported "very satisfactory" contacts.

Definitions Completed

The definition and preliminary portions of the carbon spark study has been completed and a report prepared. The study is continuing at the riverside fire laboratory. Of particular interest will be the migratory behavior of burning sparks.

Research by the Gulf Atomic Company to develop a system whereby the use of trace elements can be identified in fire-starting materials and subsequently tied to individuals who start fires has been completed. A report will be available in the near future.

Burning rates of cigarettes were found to vary with relative humidity, wind speed, and orientation of the burning tip with respect to wind direction. Effect of wind speed and humidity appears to be less when the burning tip is oriented away from the wind than when it faces into it. Burning rate tests thus far have been conducted only on a standard and level surface. Effect of surface and orientation of the tip to the vertical plane have yet to be investigated.

Sustained combustion – either flaming or flowing – of whole natural grass fuel was found to be virtually impossible with a cigarette, even with a fuel moisture of two percent, relative humidity of 11 percent, and fuel

temperature of 135°F. However, glowing combustion could be established in finely divided grass fuel with a moisture content as high as eight percent. It appears that fire starts from cigarettes is a two-stage process. Under favorable conditions a cigarette can start glowing combustion in litter and duff fuels. This glowing combustion can continue until it reaches a situation favorable for flaming combustion to be initiated. The parameters controlling the change from glowing to flaming combustion have not yet been isolated.

The temperature in the center of a burning cigarette was found to range between 1300 and 1500°F. However, the temperature at the cigarette surface was found to be much lower, ranging from about 700 to 1100°F. Most surface temperatures measured were less than 900°F. Under ideal conditions where there are no heat losses – such as in a muffle furnace – glowing combustion will begin in grass fuels at a temperature of about 800°F. Since heat losses are considerable under natural conditions, the low surface temperature of a burning cigarette is one of the major reasons it is a marginal firebrand.

The moisture content of fuel is known to have a major effect on the probability of ignition by any small firebrand. Thus, to evaluate the ignition potential of any firebrand under field conditions, it is essential that reliable estimates of fuel moisture be obtained. Relatively little is known about the moisture content of natural fuels in relation to their environment. To help fill this void in our knowledge of wildland fuel moisture, a new method of determining the equilibrium moisture content of fuel has been developed which eliminates much of the tedious and time-consuming procedures of past methods. The new method utilizes a closed environment system and the physical relationship of fuel moisture to air moisture content. The system permits calculation of equilibrium moisture from a few easily made measurements.

Fire Research

Research and development have a significant role in the Division of Forestry program. Research provides fundamental knowledge necessary for understanding complex problems in forest protection, fire prevention, and wildland resource management. Development of equipment and techniques provides actual tools for attacking these problems. Their solution gives the division additional means for carrying out protection responsibilities and meeting management needs due to rapid changes in wildland resource use and widespread awareness of relationships between wildlands and environmental quality.

Cooperative agreements or contracts between the division and agencies or institutions engaged primarily in research are the principal means of meeting our research needs. A limited amount is in the category of administrative studies or field investigations.

The division continued its cooperative research program with several other governmental agencies and private companies in 1971. Money continued to be allocated to the Pacific Southwest Forest and Range Experiment Station of the U. S. Forest Service for research in fire management systems and fire meteorology.

Also, although no money was involved, the division continued its agreement with the experiment station for a cooperative program in fuelbreak research. In addition, division personnel conducted several research and development projects or evaluated new equipment designed to assist fire control operations.

Systems Project Developing

The Fire Management Systems Project has been developing a large scale computer simulation model of the total wildland fire control system. The model will include fire occurrence and behavior, fire prevention, detection, and suppression efforts. It will take about four years to develop and, when completed, will be one of the largest and most complex simulation models developed by a civilian agency. It will have the capability of evaluating fire control and manning plans. As a result, managers will be able to test the effectiveness of their fire planning decisions relatively quickly and inexpensively before implementing them. A preliminary version of the model is being developed for the Tonto National Forest in Arizona. As this pilot model is refined, the Division of Forestry will participate in further testing together with additional national forests.

The Fireclimate Project continued to seek ways of assisting fire control administrators to relate meteorological observations and forecasts to the solution of fire problems. Project personnel completed the initial development of the new National Fire Danger Rating System, portions of which will be implemented on a trial basis by the Division of Forestry and each of the forest service's regions in 1972. Following are the studies in which the Fireclimate Project was actively engaged in 1971:

1. Relationship of atmospheric stability to fire behavior.
2. Three-dimensional structure and energy budget of the Pacific Coast Monsoon.
3. Investigation of mesoscale phenomena of the Pacific Coast and marine-continental interaction zone in mountainous terrain.
4. Meteorological effects on air pollution in the San Bernardino Mountains.
5. Classification of weather patterns in the eastern south coast basin of California.

Bill Innes, Fire Weather Meteorologist for the Division of Forestry records wind speeds in excess of 100 miles per hour atop the Mount St. Helena Lookout in Sonoma County.

The division evaluated a device which causes an emergency vehicle's headlights to flash alternately. This technique was found to be more effective than flashing red lights in gaining the attention of oncoming traffic.

Electronic devices for opening garage doors were evaluated as a means for bulldozer swampers to activate a horn in the bulldozer, thereby alerting the bulldozer operator to hazards in front of him. This device seems to have some promise for safety purposes but is limited in its range to 200 to 300 feet, direct line-of-sight.

The Santa Cruz Ranger Unit obtained a surplus U. S. Marine Corps shower trailer and modified it for use in campaign fire camps.

The Sierra Cascade District developed a *Personnel Retriever* which enables personnel working in steep canyons on fire lines or project work to be pulled to the top of steep slopes quickly and safely. A small gasoline powered engine activates a winch which has a positive safety lock.

Soil and Vegetation Survey

The State Cooperative Soil-Vegetation Survey was continued during 1971, with the participating agencies Pacific Southwest Forest and Range Experiment Station, and the University of California.

Investigation, mapping, and sampling of soils and vegetation and their productivity were continued on state and private land in Butte, Calaveras, and Tuolumne counties.

Although there were some changes in field personnel, about three man-years of effort were utilized in mapping approximately 144,000 acres as follows:

Butte	**94,000 acres**
Calaveras	**41,000**
Tuolumne	**9,000**
Total	**144,000 acres**

Laboratory scientists of the Department of Soils and Plant Nutrition, University of California's Davis Campus, completed analyses of five soil profiles consisting of 26 horizons, requiring 550 separate determinations.

X-ray analyses, for determination of clay minerals, were completed for 109 horizons; and partially completed for 25 additional horizons. The Department of Agronomy and Range Science, UCD, sampled herbaceous plants on 52 type-acre plots in four counties; collected and identified 169 plant specimens; and continued observations and data collection on field plots established for ascertaining responses of native vegetation to fertilization.

There is a continually increasing demand from the public for the basic resource data available only from soil-vegetation maps, many requests being received for information and for assistance in interpretation. Many state, federal, local government resource and planning personnel, and consultants from various engineering and planning firms have utilized the information, as well as the general public. Relative productivity of range, chaparral, and forest areas is especially requested.

The soil-vegetation maps have been extremely useful in the segment of the study to develop comprehensive water quality control plans, which the Division of Forestry is conducting under grant from the State Water Resources Control Board.

Soil-vegetation maps are also being used by the State Department of Water Resources in a hydrologic study in Butte County and in other projects along California's north coast. The Department of Fish and Game is using them for information on both soils and vegetation in developing management plans for the winter range of the Calaveras deer herd. They are the source of basic data for the Department of Parks and Recreation in preparing an interpretive exhibit design plan for Lake Oroville visitor center; and they have been useful to that department in many other instances.

Soil-vegetation survey scientist examines a sedimentary rock formation buried under a cap of lava, Shasta County.

Dr. Paul Zinke, University of California, and Ben Smith, Soil-Vegetation Survey, explain a sample plot to Dr. Florence, visiting Australian forester, in Humboldt County.

• Publications of 1971 •

Activities of the Division are reported, and results of research made available in a variety of publications. Those listed below were distributed during 1971. They were prepared by members of the Division, or resulted from cooperative projects with other agencies. All are directly related to work with the Division of Forestry.

Papers and Reports Processed by Division of Forestry and Department of Conservation.

Annual Forest Practice Report - 1970. 6 pp.

Brushland Range Improvement - 1970. 22 pp.

California State Forests - 1970. 13 pp.

Emergency Revegetation of Burned Watersheds - 1970. 22 pp.

Forest Nurseries Annual Report, 1970-71 by C. J. Eden. 9 pp.

Reforestation Studies, 1970 by Ronald S. Adams. 16 pp.

The State Forester's 1970 Report. 32 pp.

Production of California Timber Operators in 1969 by Daniel D. Dotta State Forest Note No. 44, 6 pp.

California Cone Crop for 1971 by C. J. Eden. State Forest Note No. 45, 9 pp.

Grass and Fertilizer Selection for Road Spoil Erosion Control on Jackson State Forest by Norman N. Stoneman. State Forest Note No. 46, 9 pp.

Markets for Woodland Products in California. by Brian R. Barrette. Report No. 6, 39 pp.

Lake Tahoe - Urbanization Under the Forest Canopy, by Richard Hunt, 12 pp.

Preschool and Elementary Fire Prevention and Conservation Education Program Refill Kit, by Richard Ernest and Rex Griggs, 1971.

Employees Guide. A revision of *Introduction to Employment,* Division of Forestry, Department of Conservation, 50 pp., 1971.

Professional Police Principles by Edward M. Davis, Chief of Police, City of Los Angeles. California Fire Prevention Note No. 7, 9 pp., 1971.

Printed Articles & Books (by Division Personnel)

California's 1970 Fire Weather Severity by Rex Hess and William Innes, California Fire Control Note No. 25, 1971, 12 pp., illus.

California Aflame! September 22-October 4, 1970 by Clinton B. Phillips. 83 pp., illus.

Tree Volume Equations and Tables from Dendrometer Measurements, (Sierra redwood), by Lee C. Wensel and Richard L. Schoenheide. Hilgardia Vol. 41, No. 4, September 1971. California Agricultural Experiment Station.

California Tree Seed Zones, by C. J. Eden. The Plant Propagation, Vol. 17, No. 4, December 1971.

Publications Resulting from Cooperative Effort of Division of Forestry

Forest Pest Conditions in California - 1970. California Forest Pest Control Action Council - CDF, 25 pp.

The Market for Fence Posts in Nevada & Eastern California. by Brian R. Barrette, Bob Long, & Carl Cahill. Nevada Division of Forestry, 25 pp.

The Tale of the Terrible Twosome, California Forest Pest Control Action Council - Revised December 1971 - CDF, 16 pp.

Some Vascular Plants of Eastern Shasta County, California by James R. Griffin and W. Robert Powell, April 1971, 41 pp.

A Mobile Mixing Base for Phos-Chek Fire Retardants, USDA Forest Serv. San Dimas Equip. Develop. Center, Equip Tips ED&T712, May 1971, 4 pp., illus.

Burning Trials in Shrubby Vegetation Dessicated with Herbicides by Jay R. Bentley, C. Eugene Conrad, and Harry E. Schimke. USDA Forest Serv. Pacific SW Forest & Range Exp. Sta., Berkeley, CA, Res. Note PSW-241, 1971, 9 pp., illus.

Effects of Several Factors on Saltbush Establishment in California by E. C. Nord, P. F. Hartless, and W. D. Nettleton. 1971. J. Range Manage. 24: 216-223.

California Fuelbreaks: Costs and Benefits by Rudolph F. Grah and Alan Long. 1971. J. of Forestry 69(2): 89-93.

Fire Herbaceous Fuels in Fire Danger Rating by M. A. Fosberg and M. J. Schroeder, 1971. USDA Forest Serv. Rocky Mt. Forest and Range Exp. Sta. Res. Paper RM-185, 7 pp., illus.

Fire Control Planning, Simulation, and The Forest Service by Theodore G. Storey. 1971. USDA Forest Serv. Pacific SW Forest and Range Exp. Sta., 27 pp., illus.

Youthful Firesetters by Seigelman and Folkman, USDA Forest Service, Research Note PSW-230, 6 pp, 1971.

Railroad Right-of-Way Hazard Reduction Guide Division of Forestry, Department of Conservation, Resources Agency, State of California, USDA Forest Service Region 5, 31 pp., 1971.

Guides for Fuel Breaks in the Sierra Nevada Mixed-Conifer Type by Lisle R. Green and Harry E. Schimke. 1971. 14 pp., illus.

Leaf and Apical Growth Characteristics in Triticum by L. S. Evans and A. R. Berg. 1971. Amer. J. Bot. 58:540-543.

Studies on the Inhibition of the Basipetal Auxin Transport by Morphactin by Athanasios Apostolos Gagianas. 1971. Ph.D. dissertation, Univ. of California, Riverside. 82 pp.

This Humidity Business: What it is All About and Its Use in Fire Control by Clive M. Countryman. USDA Forest Serv. Pacific SW Forest and Range Exp. Sta. 15 pp.

Environmental Impact of Urbanization on the Foothill and Mountainous Lands of California–November 1971. Calif. Div. of Soil Conserv., Sacramento, CA. 70 pp, illus.

Gibberellic Acid Breaks Dormancy and Hastens Germination of Creeping Sage. by Nord, Eamor C., Louis E. Gunter, and Stuart A. Graham, Jr., U.S.D.A. Forest Service Research Note PSW - 259, 1971, 5 pp.

Care of Ground Squirrels (Spermophilus Spp.) in Captivity, by Rex E. Marsh and Walter E. Howard. Laboratory Animal Science, Vol. 21, No. 3, March, 1971.

Physiological Grading of Ponderosa Pine Nursery Stock, by Edward C. Stone and James L. Jenkinson. Journal of Forestry, Vol. 69, No. 1, January, 1971.

CHRONOLOGY OF THE CALIFORNIA DIVISION OF FORESTRY

1885 March 3, the governor approved an act which authorized a three-member California State Board of Forestry.

1887 *The budget was raised to about $15,000 per year, and police power to enforce laws was granted.*

1893 In the spring of 1893 the commission was abolished.

1903 *When George C. Pardee became governor he joined with Gifford Pinchot to provide for a joint state-federal survey of the forest and water situation in California. As a result of this survey and the policies developed during its progress, the Legislature created the office of state forester and a new Board of Forestry.*

1905 Edward T. Allen was appointed by Pardee as the first California state forester. He remained only about a year, working to build up a fire protection system composed of volunteer fire wardens.

1906 *Gerald B. Lull was appointed as the second state forester. He worked for local fire protection, managed the California Redwood Park at Big Basin, and joined the wide enthusiasm for eucalyptus planting.*

1909 Lull resigned to work for a eucalyptus development firm. George Morris Homans was appointed next state forester. Homans continued the struggle to establish a fire protection organization, to create a forest nursery, and establishing state forests on cut-over land.

1919 *After the experience of fire sabotage in World War I, the State Legislature passed legislation that provided for a new Board to consist of five men representing designated industries. Former Governor Pardee accepted the chairmanship. The state forester was granted the authority to enter cooperative agreements with counties, persons, and agencies to engage in fire protection--$25,000 was appropriated for such work during the 1919 and 1920 seasons.*

With the help of the Highway Commission, the Davis Nursery was established, primarily for the production of roadside trees and ornamental stock. The law stipulated that this stock could be purchased only the public agencies.

1921 Homans dies and his deputy, Merritt B. Pratt, was appointed state forester. The counties were entering cooperative agreements for fire protection. Slash disposal and the light-burning theory became objects of study by the Board. The State Legislature appropriated funds to develop a state parks system in the northern redwoods under the supervision of the Board of Forestry.

1922 *By 1922 there were 21 rangers and two state lookouts, the "protected" area rose from 3.5 to 8.5 million acres. Also, through Army cooperation, aircraft were introduced as a detection and transportation force into forest fire protection.*

1923 A nuisance abatement law was enacted under which a majority of landowners could petition the Board of Forestry to declare a zone of insect infestation, at the owner's expense.

1927 *Forestry became a division in a new Department of Natural Resources. The board was recreated with seven members--Dr. Pardee was again appointed chairman.*

1929 The first four mountain fire trucks, developed by forestry and highway mechanics, made their first appearance.

1930 *Establishment of a few full-time suppression crews rather than "pickup" labor.*

1931-33 With little monetary assistance, there were developed so-called "labor camps" by Division of Forestry personnel during the winters of 1931-32 and 1932-33. This unique pioneer project pointed the way for the nationwide Civilian Conservation Corps, which played such a valuable role during the following decade. During that program. the division actively supervised the work projects of 33 camps.

1939 *The law was liberalized to allow the division nursery to sell trees for certified forestry purposes.*

1940 The "Clar Plan" or the Fire Plan of 1940, was developed--this plan pointed the way toward a clear-cut policy for segregating the burden of fire protection costs among the political sub-divisions of government.

1941 *In the spring, the board asked for more than a million dollar supplement as the first step in augmenting the Fire Plan--this request failed.*

1943 The Legislature created the California Forestry Study Committee.

1945 *On January 1, Pratt retired as state forester. DeWitt Nelson was appointed state forester. Three major projects began to unfold: 1) the development of the Forest Practice Act, to regulate cutting of forest products; 2) the acquisition of state forests by purchase; and 3) the refinement of cooperative arrangements with the counties to provide for fire protection.*

In 1945 permanent conservation camps were established under dual authority of the custodial agency and the Division of Forestry. Youth Authority wards and the Department of Corrections inmates worked on forestry projects.

The Forest Practice Act was enacted.

1950s By this time there were three nurseries established at conservation camps--under the supervision of resident nurserymen; the camp inmates and wards provided most of the labor to produce seedlings for sale at nominal cost for forest planting.

1953 *DeWitt Nelson was appointed director of Natural Resources and Francis H. Raymond was appointed state forester.*

1954 Cooperation with federal government under the Small Watersheds Act.

1960 *The annual production at division nurseries had risen to four million trees.*

1961 The Resources Agency was created to coordinate and generally supervise the Departments of Conservation, Fish and Game, Water Resources, and Parks and Recreation. The Department of Natural Resources was modified and the name was changed to Department of Conservation. Nelson continued as director.

1963 *The Forest Practice Act was amended which gave the state forester the power to deny or refuse renewal of permit to any operator who had violated the forest practice rules.*

1965 The number of conservation camps increased until by 1965, there were 37 base camps housing a total of about 3,000 wards and inmate workers.

The Forest Practice Act was amended.

1966 *Nelson resigned as director of Conservation and Dr. Ian Campbell became interim director.*

1967 James G. Stearns became director of Conservation.

1970 *In 1970, the State Legislature broadened the membership of the Board of Forestry by adding another public member. Legislation also provided for two public members to be placed on each Forest Practice Committee.*

Raymond retired as state forester.

1971 The California Ecology Corps was established by Governor Reagan. The Forest Practice Act was, again, amended. Parts of the act were declared unconstitutional by the State Court of Appeal, in San Francisco.

Lewis A. Moran appointed state forester.

THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

DIVISION OF FORESTRY

1416 Ninth Street
Sacramento, Calif. 95814

To_____

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